AV RECEIVER
RX-V461/HTR-6040/ RX-V461DAB
SERVICE MANUAL

For T, B, G and E models

This service manual is the RX-V461/HTR-6040/RX-V461DAB (T, B, G and E models).
For the RX-V461/HTR-6040/DSP-AX461 (U, C, R, K, A, L and J models) service manual, please refer to the following service manual:

RX-V461/HTR-6040/DSP-AX461 (U, C, R, K, A, L and J models): 101041

IMPORTANT NOTICE

This manual has been provided for the use of authorized YAMAHA Retailers and their service personnel.
It has been assumed that basic service procedures inherent to the industry, and more specifically YAMAHA Products, are already known and understood by the users, and have therefore not been restated.

WARNING: Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components, and failure of the product to perform as specified. For these reasons, we advise all YAMAHA product owners that any service required should be performed by an authorized YAMAHA Retailer or the appointed service representative.

IMPORTANT: The presentation or sale of this manual to any individual or firm does not constitute authorization, certification or recognition of any applicable technical capabilities, or establish a principle-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The research, engineering, and service departments of YAMAHA are continually striving to improve YAMAHA products. Modifications are, therefore, inevitable and specifications are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

WARNING: Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).

IMPORTANT: Turn the unit OFF during disassembly and part replacement. Recheck all work before you apply power to the unit.

■ CONTENTS

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This Service Manual uses recycled paper.

101048

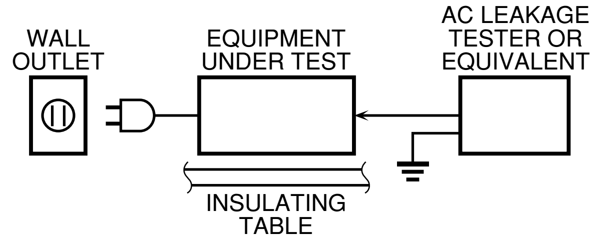
YAMAHA
YAMAHA CORPORATION
P.O.Box 1, Hamamatsu, Japan

'07.07

■ TO SERVICE PERSONNEL

1. Critical Components Information
   Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
2. Leakage Current Measurement (For 120V Models Only)
   When service has been completed, it is imperative to verify that all exposed conductive surfaces are properly insulated from supply circuits.

- Meter impedance should be equivalent to 1500 ohms shunted by 0.15µF.



- Leakage current must not exceed 0.5mA.
- Be sure to test for leakage with the AC plug in both polarities.

WARNING: CHEMICAL CONTENT NOTICE!

The solder used in the production of this product contains LEAD. In addition, other electrical/electronic and/or plastic (where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHATSOEVER!

Avoid prolonged, unprotected contact between solder and your skin! When soldering, do not inhale solder fumes or expose eyes to solder/flux vapor!

If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.

About lead free solder

All of the P.C.B.s installed in this unit and solder joints are soldered using the lead free solder.

Among some types of lead free solder currently available, it is recommended to use one of the following types for the repair work.

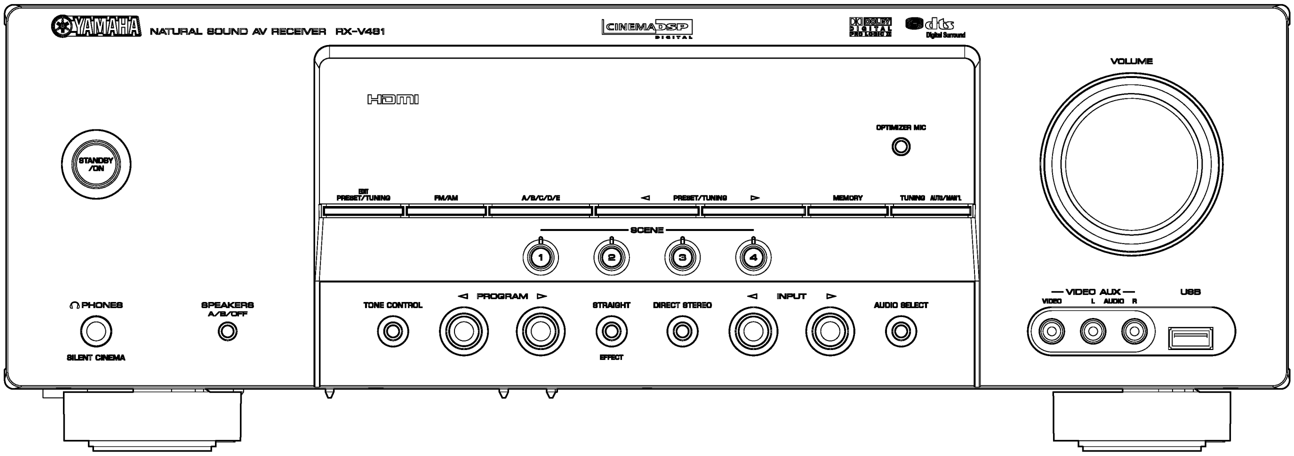
- Sn + Ag + Cu (tin + silver + copper)
- Sn + Cu (tin + copper)
- Sn + Zn + Bi (tin + zinc + bismuth)

Caution:

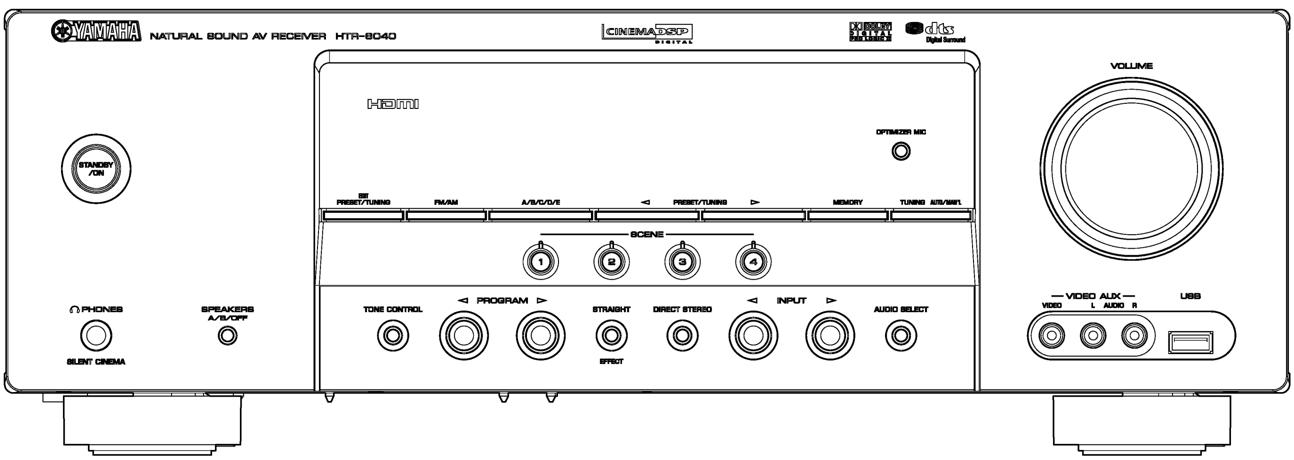
As the melting point temperature of the lead free solder is about 30°C to 40°C (50°F to 70°F) higher than that of the lead solder, be sure to use a soldering iron suitable to each solder.

■ FRONT PANELS

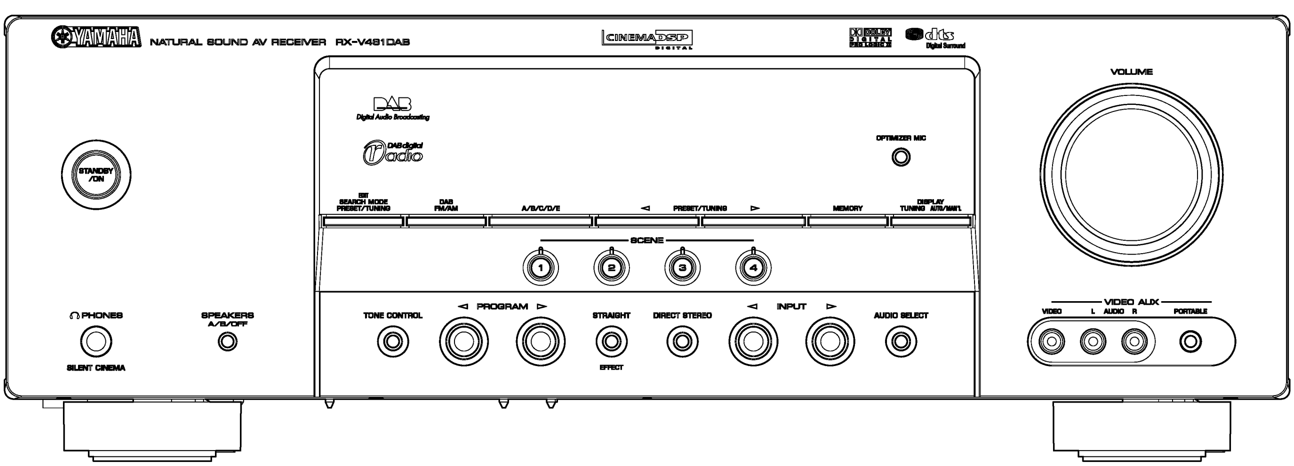
RX-V461 (T, G, E models)



HTR-6040 (T, G, E models)

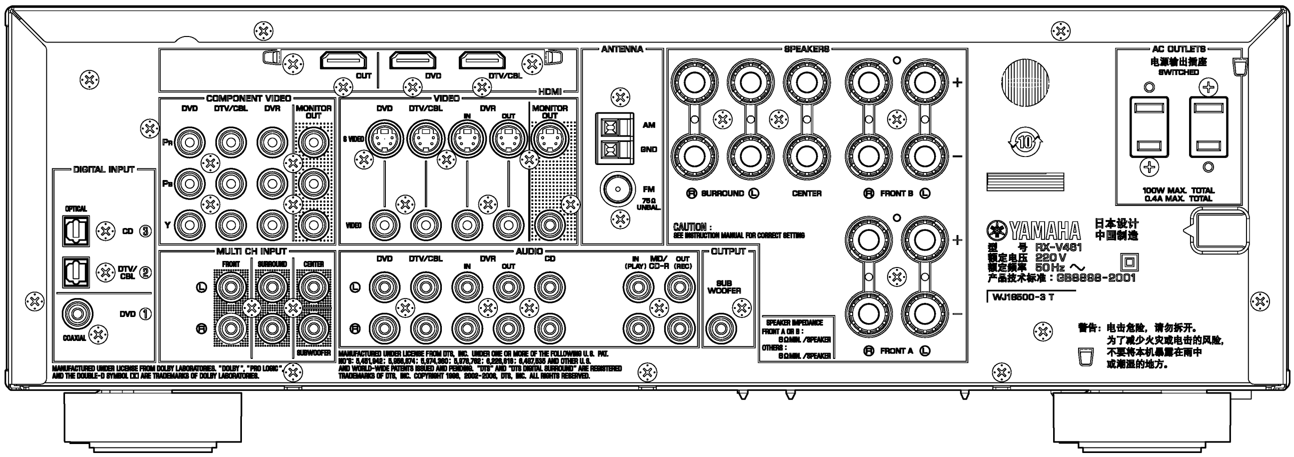


RX-V461DAB (B model)

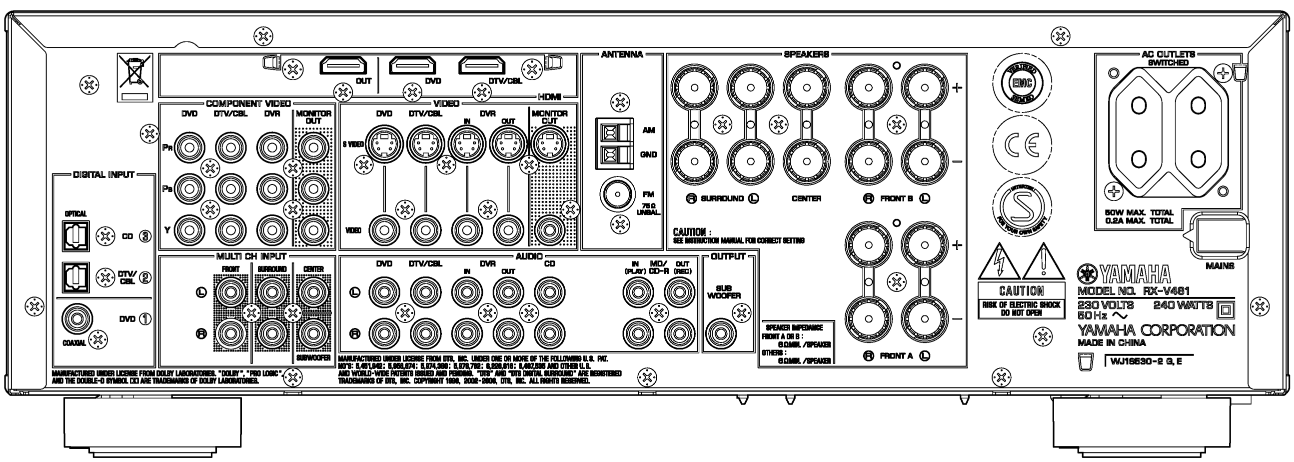


■ REAR PANELS

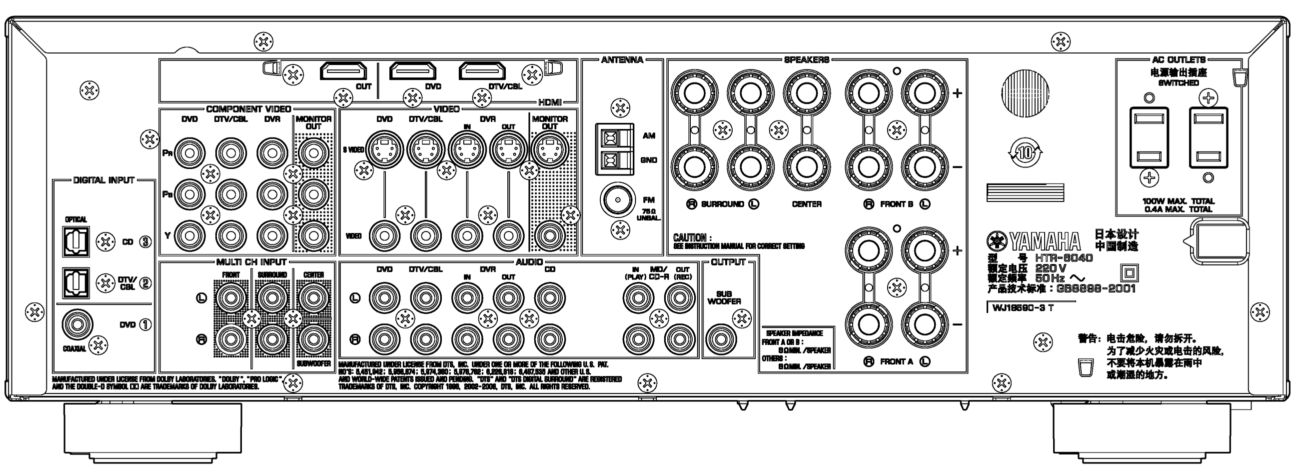
RX-V461 (T model)



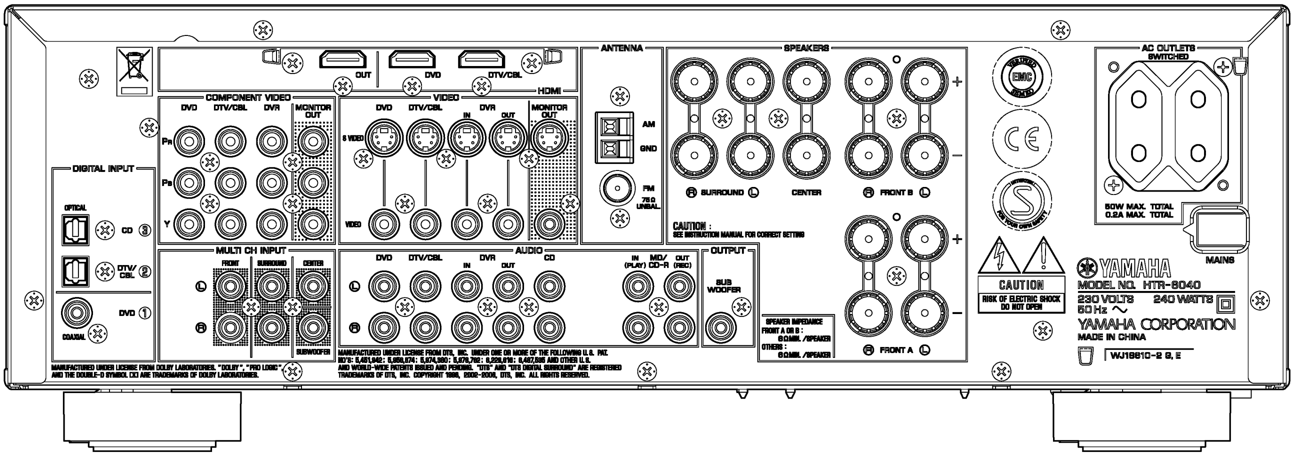
RX-V461 (G, E models)



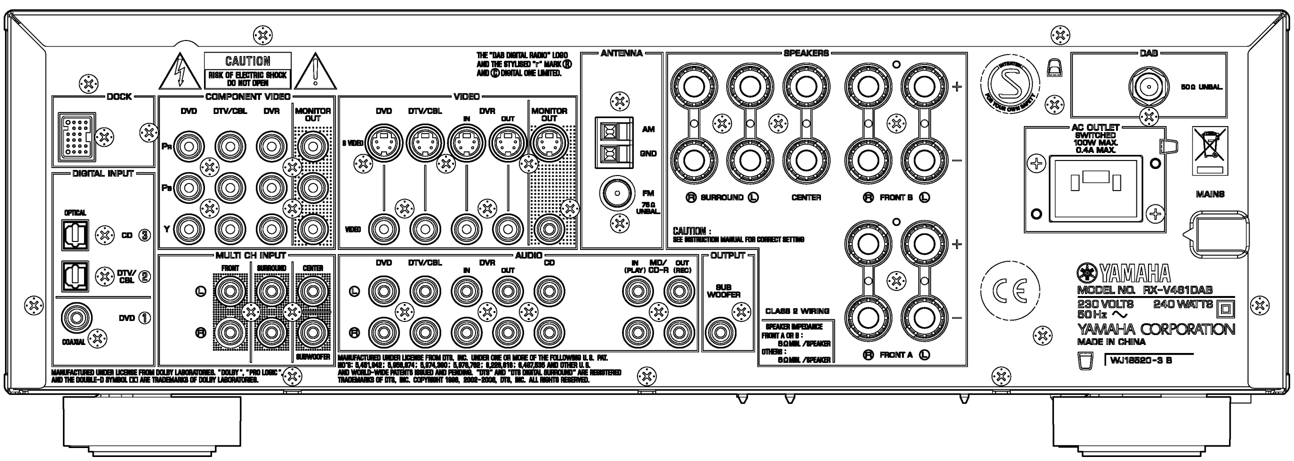
HTR-6040 (T model)



HTR-6040 (G, E models)

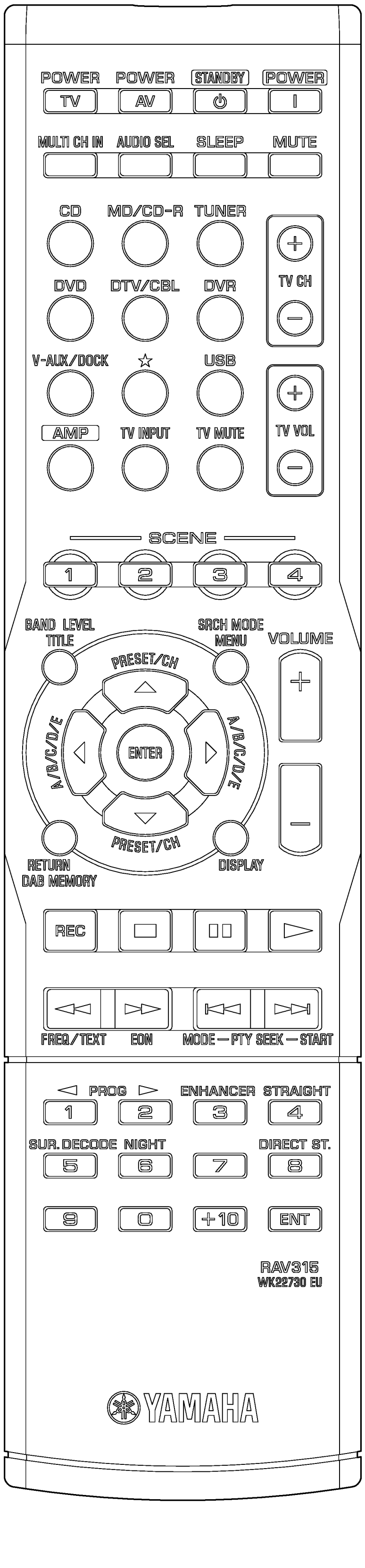


RX-V461DAB (B model)

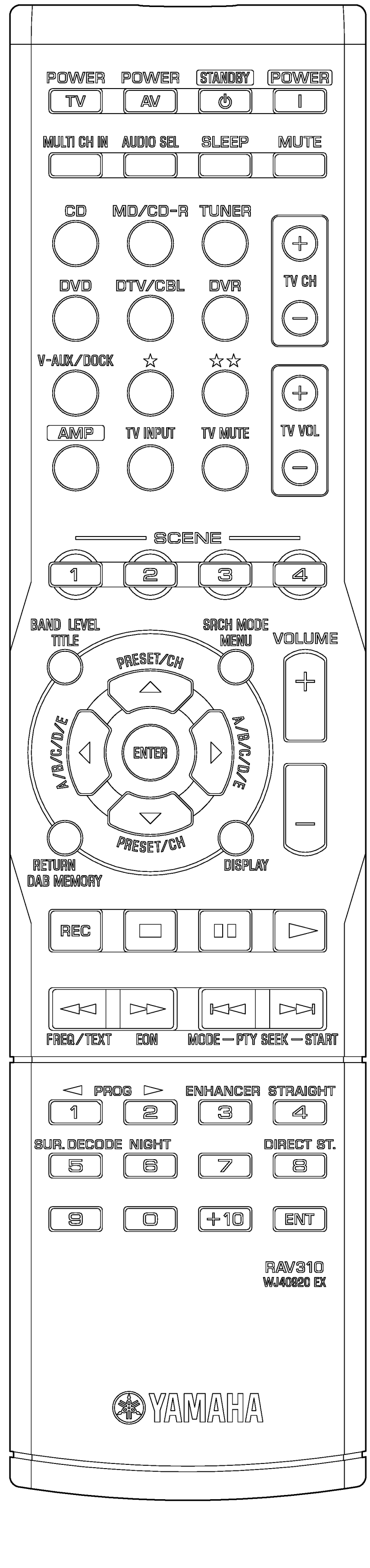


■ REMOTE CONTROL PANELS

- **RAV315**
  RX-V461 (T, G, E models)
  HTR-6040 (T, G, E models)



- **RAV310**
  RX-V461DAB (B model)



■ SPECIFICATIONS

■ Audio Section

Minimum RMS Output Power (Power Amp. Section)
FRONT L/R, CENTER, SURROUND L/R
1 kHz, 0.9 % THD, 6 ohms .... 100 W/ch

Maximum Power (JEITA)
FRONT L/R, CENTER, SURROUND L/R
1 kHz, 10 % THD, 6 ohms .... 135 W/ch

Dynamic Power Per Channel (IHF)
6/4/2 ohms .... 105/130/150 W

Input Sensitivity/Input Impedance (1 kHz, 100 W, 8 ohms)
CD, etc. .... 200 mV / 47 k-ohms
MULTI CH INPUT
FRONT L/R, CENTER, SURROUND L/R, SUBWOOFER
.... 200 mV / 47 k-ohms

Maximum Input Signal (1 kHz, 0.5 % THD, Effect on)
CD, etc. .... 2.0 V or more

Output Level/Output Impedance
REC OUT .... 200 mV / 1.2 k-ohms
SUBWOOFER (2 ch STEREO and FRONT SP: Small)
.... 4 V / 1.2 k-ohms

Headphone Jack Rated Output/Impedance
CD, etc. (1 kHz, 200 mV, 8 ohms) .... 0.4 V / 470 ohms

Frequency Response (10 Hz to 100 kHz)
CD, etc. to FRONT L/R .... 0 / -3.0 dB

Total Harmonic Distortion (Direct stereo to FRONT L/R SP OUT)
1 kHz, 50 W, 6 ohms .... 0.06 % or less

Signal to Noise Ratio (IHF-A Network)
(Direct stereo to input shorted SP OUT)
200 mV .... 98 dB or more
250 mV .... 100 dB or more

Residual Noise (IHF-A Network)
FRONT L/R SP OUT .... 150 µV or less

Channel Separation (Input 5.1 k-ohms shorted, 1 kHz / 10 kHz)
CD, etc. .... 60 dB or more / 45 dB or more

Tone Control Characteristics
BASS
Boost/Cut .... ±10 dB (100 Hz)
TREBLE
Boost/Cut .... ±10 dB (20 kHz)

Filter Characteristics
FRONT, CENTER, SURROUND, SURROUND BACK small (H.P.F.)
.... fc=40/60/80/90/100/110/120/160/200 Hz, 12 dB/oct.
SUBWOOFER (L.P.F.)
.... fc=40/60/80/90/100/110/120/160/200 Hz, 24 dB/oct.

Multimedia (USB) Applications
T, G, E models .... Connections USB mass storage class device

Playback Formats (USB device)
T, G, E models .... WAV (PCM format), MP3, WMA

Supported USB Devices (FAT16 or FAT32 format)
T, G, E models .... USB memory device, Portable audio player

■ Video Section

Video Signal Type (Gray Back)
.... PAL

Composite Video Signal Level
.... 1 Vp-p / 75 ohms

S-Video Signal Level
Y .... 1 Vp-p / 75 ohms
C .... 0.286 Vp-p / 75 ohms

Component Video Signal Level
Y .... 1 Vp-p / 75 ohms
Pb/Pr .... 0.7 Vp-p / 75 ohms

Video Maximum Input Level
.... 1.5 Vp-p or more

Signal to Noise Ratio (IHF)
.... 50 dB or more

Monitor Out Frequency Response (VIDEO CONV. OFF)
Component video signal .... 5 Hz to 60 MHz, -3 dB

HDMI (HDMI 1.2a)
T, G, E models .... Type A (IN x 2, OUT x 1)

■ FM Section

Tuning Range
.... 87.50 to 108.00 MHz

50dB Quieting Sensitivity (IHF) (1 kHz, 100 % Mod.)
Mono
T, G, E models .... 2.8 µV (20.2 dBf)
B model .... 2.0 µV (17.3 dBf)

Signal to Noise Ratio (IHF)
Mono
T, G, E models .... 73 dB
B model .... 76 dB
Stereo
.... 70 dB

Harmonic Distortion (1 kHz)
Mono / Stereo
T, G, E models .... 0.5 % / 0.5 %
B model .... 0.2 % / 0.3 %

Antenna Input .... 75 ohms unbalanced

■ AM Section

Tuning Range
.... 531 to 1,611 kHz

Sensitivity (B model)
.... 300 µV/m

Antenna Input
.... Loop antenna

■ DAB Section (B model)

Tuning Range
Band III .... 174 to 240 MHz
L-Band .... 1,452 to 1,492 MHz

Sensitivity
Band III .... -99 dBm
L-Band .... -95 dBm

Selectivity (For adjacent channel)
Band III / L-Band .... 40 dB

Signal to Noise Ratio
.... 97 dB

Total Harmonic Distortion
.... 0.01 %

Stereo Separation
1 kHz .... 95 dB

Frequency Response
20 Hz to 20 kHz .... +0.5/-0.5 dB

Antenna Input .... 75 ohms unbalanced

■ General

Power Supply
T model .... AC 220 V, 50 Hz
B, G, E models .... AC 230 V, 50 Hz

Power Consumption
.... 240 W

Standby Power Consumption (reference data)
.... 0.8 W

AC Outlets
2 switched outlets
T model .... 100 W max. total
G, E models .... 50 W max. total
1 switched outlet
B model .... 50 W max. total

Dimensions (W x H x D)
.... 435 x 151 x 317.6 mm (17-1/8" x 5-15/16" x 12-1/2")

Weight
.... 8.1 kg (17 lbs. 14 oz.)

Finish
[RX-V461]
Gold color .... T model
Black color .... G, E models
Titanium color .... G, E models
[HTR-6040]
Gold color .... T model
Black color .... G model
Silver color .... G, E models
[RX-V461DAB]
Black color .... B model
Titanium color .... B model

Accessories
Remote control x 1, Batteries (R03, AAA, UM-4) x 2, Indoor FM antenna x 1, AM loop antenna x 1, Optimizer microphone x 1, DAB wire antenna x 1 (B model)

* Specifications are subject to change without notice due to product improvements.

T .... Chinese model *B ...... British model*
G .... European model *E ...... South European model*

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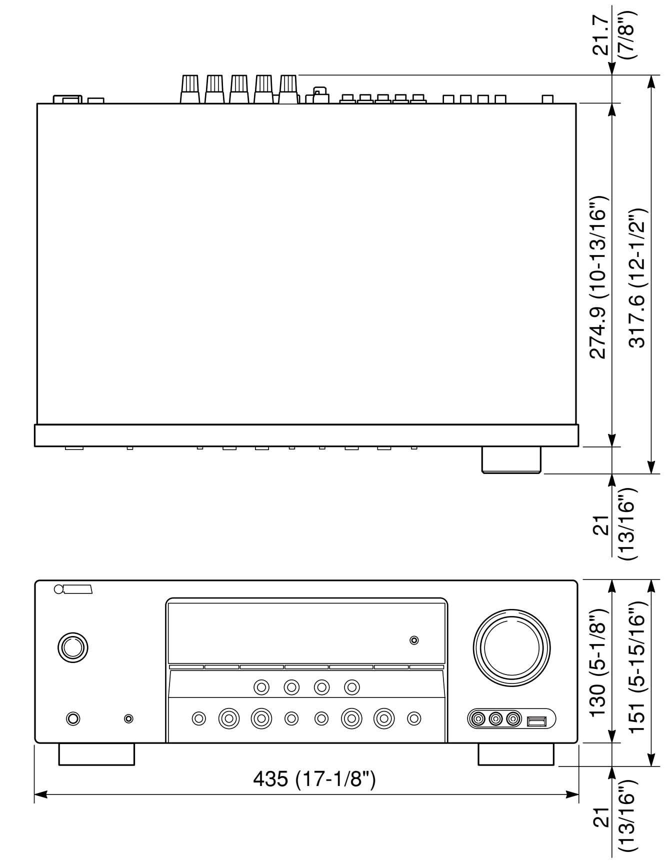
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This receiver supports DAB tuning.

• DIMENSIONS



Unit: mm (inch)

- **SCENE TEMPLATE**

SCENE name	Contents		Source	Program		Select (Default)		
				Mode	Sub-mode	T model	B model	G, E models
DVD Viewing	DVD	Movie	DVD	STRAIGHT	–	O	O	O
DVD Movie Viewing			DVD	MOVIE THEATER	Movie Dramatic	O (SCENE 1)	O (SCENE 1)	O (SCENE 1)
DVD Live Viewing			DVD	MUSIC	Pop/Rock	O	O	O
DVR Viewing	DVR		DVR	MOVIE THEATER	Movie Dramatic	O	O	O
Disc Hi-fi Listening	DVD-Audio / SA-CD / CD	Music Disc	DVD	DIRECT STEREO	–	O	O	O
Music Disc Listening			DVD	STEREO	2ch Stereo	O (SCENE 2)	O (SCENE 2)	O (SCENE 2)
Disc Listening			DVD	STEREO	5ch Stereo	O	O	O
CD Hi-fi Listening	CD	Music Disc	CD	DIRECT STEREO	–	O	O	O
CD Listening			CD	STEREO	2ch Stereo	O	O	O
CD Music Listening			CD	STEREO	5ch Stereo	O	O	O
Radio Listening	TUNER/RADIO	FM/AM	FM/AM (TUNER)	MUSIC ENHANCER	5ch Stereo	O (SCENE 4)	O (SCENE 4)	O (SCENE 4)
DAB Listening		DAB	DAB (TUNER)	MUSIC ENHANCER	5ch Stereo	–	O	–
iPod Listening	DIGITAL AUDIO PLAYER	iPod	DOCK (V-AUX)	MUSIC ENHANCER	5ch Stereo	X	O	X
USB Audio Listening		USB	USB	MUSIC ENHANCER	5ch Stereo	O	–	O
TV Viewing	TV		DTV/CBL	STRAIGHT	–	O (SCENE 3)	O (SCENE 3)	O (SCENE 3)
TV Sports Viewing			DTV/CBL	ENTERTAINMENT	TV Sports	O	O	O
Game Playing	GAME		V-AUX	ENTERTAINMENT	Game	O	O	O

- **SOUND/SURROUND SELECT MENU**

Sound Field Parameters

		DSP LEVEL MIN, [MID], MAX	MUSIC ENHANCER LOW, [HIGH]
STEREO	2ch Stereo		
	5ch Stereo		
MUSIC	Pop/Rock	O	
	Hall	O	
	Jazz	O	
ENTERTAIN	Game	O	
	TV Sports	O	
MOVIE	Movie Spacious	O	
	Movie Dramatic	O	
MUSIC ENHANCER	Music Enh. 2ch		O
	Music Enh. 5ch		O

Surround Decoders

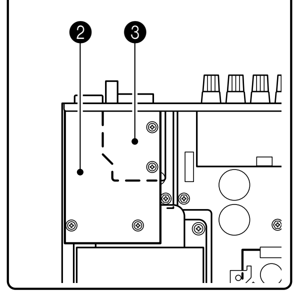
		PANORAMA ON, [OFF]	DIMENSION -3, [STD], +3	CENTER WIDTH 0, 1, 2, [3], 4, 5, 6, 7
DECODING FORMAT	Dolby Digital			
	DTS			
POST DECODING FORMAT	Dolby Pro-Logic			
	Dolby Pro Logic II Music	O	O	O
	Dolby Pro Logic II Movie			
	Dolby Pro Logic II Game			

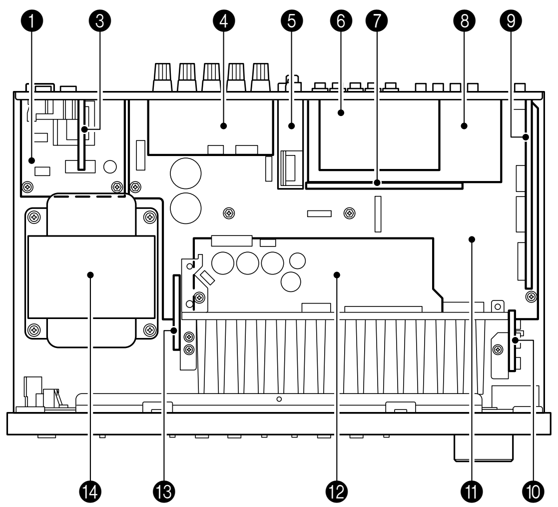
- **SET MENU TABLE**

<table>
<tr><th>CATEGORY</th><th>MAIN MENU</th><th>SUB MENU</th><th>SELECT MENU</th><th>VALUE [INITIAL]</th></tr>
<tr><td>AUTO SETUP</td><td colspan="4">Use this feature to automatically adjust speaker and system parameters.</td></tr>
<tr><td>MANUAL SETUP</td><td>1 SOUND MENU</td><td>A) SPEAKER SET</td><td>FRONT B : FRONT</td><td>[FRONT] / ZONE B</td></tr>
<tr><td></td><td></td><td></td><td>FRONT SP : LARGE</td><td>SMALL / [LARGE]</td></tr>
<tr><td></td><td></td><td></td><td>CENTER SP : SML</td><td>NONE / [SML] / LRG</td></tr>
<tr><td></td><td></td><td></td><td>SUR. L/R SP : SML</td><td>NONE / [SML] / LRG</td></tr>
<tr><td></td><td></td><td></td><td>LFE/BASS OUT : BOTH</td><td>SWFR / FRONT / [BOTH]</td></tr>
<tr><td></td><td></td><td></td><td>CROSSOVER : 80 Hz</td><td>40 / 60 / [80] / 90 / 100 / 110 / 120 / 160 / 200 Hz</td></tr>
<tr><td></td><td></td><td></td><td>SUBWOOFER PHASE : NORMAL</td><td>[NORMAL] / REVERSE</td></tr>
<tr><td></td><td></td><td>B) SPEAKER LEVEL</td><td>FL •••••||•••••</td><td rowspan="6">-10 dB to +10 dB [CENTER (0)], 1 dB step</td></tr>
<tr><td></td><td></td><td></td><td>FR •••••||•••••</td></tr>
<tr><td></td><td></td><td></td><td>C •••••||•••••</td></tr>
<tr><td></td><td></td><td></td><td>SL •••••||•••••</td></tr>
<tr><td></td><td></td><td></td><td>SR •••••||•••••</td></tr>
<tr><td></td><td></td><td></td><td>SWFR •••••||•••••</td></tr>
<tr><td></td><td></td><td>C) SP DISTANCE</td><td>UNIT : feet</td><td>feet / meters</td></tr>
<tr><td></td><td></td><td></td><td>FRONT L : 10.0 ft</td><td rowspan="6">feet : 1.0 to 80.0 ft [10.0 ft], 0.5 ft step</td></tr>
<tr><td></td><td></td><td></td><td>FRONT R : 10.0 ft</td></tr>
<tr><td></td><td></td><td></td><td>CENTER : 10.0 ft</td></tr>
<tr><td></td><td></td><td></td><td>SUR. L : 10.0 ft</td></tr>
<tr><td></td><td></td><td></td><td>SUR. R : 10.0 ft</td></tr>
<tr><td></td><td></td><td></td><td>SWFR : 10.0 ft</td></tr>
<tr><td></td><td></td><td></td><td>FRONT L : 3.00 m</td><td rowspan="6">meters : 0.30 to 24.00 m [3.00 m], 0.10 m step</td></tr>
<tr><td></td><td></td><td></td><td>FRONT R : 3.00 m</td></tr>
<tr><td></td><td></td><td></td><td>CENTER : 3.00 m</td></tr>
<tr><td></td><td></td><td></td><td>SUR. L : 3.00 m</td></tr>
<tr><td></td><td></td><td></td><td>SUR. R : 3.00 m</td></tr>
<tr><td></td><td></td><td></td><td>SWFR : 3.00 m</td></tr>
<tr><td></td><td></td><td>D) CENTER GEQ</td><td>TEST : > OFF ON</td><td>[OFF] / ON</td></tr>
<tr><td></td><td></td><td></td><td>100 Hz - - || - - 0 dB</td><td rowspan="5">-6.0 dB to +6.0 dB [0 dB], 0.5 dB step</td></tr>
<tr><td></td><td></td><td></td><td>300 Hz - - || - - 0 dB</td></tr>
<tr><td></td><td></td><td></td><td>1 kHz - - || - - 0 dB</td></tr>
<tr><td></td><td></td><td></td><td>3 kHz - - || - - 0 dB</td></tr>
<tr><td></td><td></td><td></td><td>10 kHz - - || - - 0 dB</td></tr>
<tr><td></td><td></td><td>E) LFE LEVEL</td><td>SPEAKER : 0 dB</td><td>-20 dB to 0 dB [0 dB], 1 dB step</td></tr>
<tr><td></td><td></td><td></td><td>HEADPHONE : 0 dB</td><td>-20 dB to 0 dB [0 dB], 1 dB step</td></tr>
<tr><td></td><td></td><td>F) DYNAMIC RANGE</td><td>SP D. R. : MAX</td><td>MIN / STD / [MAX]</td></tr>
<tr><td></td><td></td><td></td><td>HP D. R. : MAX</td><td>MIN / STD / [MAX]</td></tr>
<tr><td></td><td></td><td>G) AUDIO SET</td><td>MUTE TYPE : FULL</td><td>[FULL] / -20 dB</td></tr>
<tr><td></td><td></td><td></td><td>A. DELAY : 0 ms</td><td>[0 ms] to 160 ms, 1 ms step</td></tr>
<tr><td></td><td></td><td></td><td>MAX VOL. : +16 dB</td><td>[+16 dB] / +10 dB / +5 dB / 0 dB / -5 dB / -10 dB / -15 dB / -20 dB / -25 dB / -30 dB</td></tr>
<tr><td></td><td></td><td></td><td>INI. VOL. : OFF</td><td>[OFF] / -80 dB to +16 dB, 1 dB step</td></tr>
<tr><td></td><td>2 INPUT MENU</td><td>A) INPUT ASSIGN</td><td>COAXIAL IN (1) : DVD</td><td>CD / MD/CD-R / [DVD] / DTV/CBL / V-AUX / DVR</td></tr>
<tr><td></td><td></td><td></td><td>OPTICAL IN (2) : DTV/CBL</td><td>CD / MD/CD-R / DVD / [DTV/CBL] / V-AUX / DVR</td></tr>
<tr><td></td><td></td><td></td><td>OPTICAL IN (3) : CD</td><td>[CD] / MD/CD-R / DVD / DTV/CBL / V-AUX / DVR</td></tr>
<tr><td></td><td></td><td>B) INPUT RENAME</td><td></td><td>CD / MD/CD-R / DVD / DTV/CBL / V-AUX / DVR
Input is possible to 8 characters
Input possible Character type:
Capital/ A to Z, Small/ a to z, Figure/ 0 to 9, Space, Marks/ # * + , - . / : < > ?</td></tr>
<tr><td></td><td></td><td>C) VOLUME TRIM</td><td></td><td>CD / MD/CD-R / TUNER / DVD / DTV/CBL / V-AUX / DVR / USB (T, G, E models) / DOCK (B model) / MULTI CH INPUT
-6.0 dB to +6.0 dB, [0.0 dB], 1.0 dB step</td></tr>
<tr><td></td><td></td><td>D) DECODER MODE</td><td></td><td>[AUTO] / LAST</td></tr>
<tr><td></td><td></td><td></td><td>CD / MD/CD-R / DVD / DTV/CBL / V-AUX / DVR</td><td>[AUTO] / DTS</td></tr>
<tr><td></td><td></td><td>E) MULTI CH SET</td><td></td><td>[LAST] / DVR / V-AUX / DTV/CBL / DVD</td></tr>
<tr><td></td><td>3 DAB MENU (B model)</td><td>A) INIT SCAN</td><td>SCAN : FULL</td><td>[FULL] / UK BAND3</td></tr>
<tr><td></td><td></td><td></td><td>Execution confirmation</td><td>“SCAN? [ENTER]”</td></tr>
<tr><td></td><td></td><td></td><td>Progress display</td><td>0 to 100%, “BREAK? [ENTER]”</td></tr>
<tr><td></td><td></td><td></td><td>Result display</td><td>“FINISH [xxx]”</td></tr>
<tr><td></td><td></td><td>B) TUNE AID</td><td></td><td>“5A LEVEL: XX”, “5B LEVEL: XX”</td></tr>
<tr><td></td><td></td><td>C) DRC MODE</td><td>DRC MODE : AUTO</td><td>[AUTO] / OFF</td></tr>
<tr><td></td><td></td><td>D) PRUNE LIST</td><td>Execution confirmation</td><td>“OK? [ENTER]”</td></tr>
<tr><td></td><td></td><td></td><td>Result display</td><td>“FINISH”, “DELETE FAILED”</td></tr>
<tr><td></td><td></td><td>E) PRESET DEL</td><td>Preset number select</td><td>“DELETE --”, 1 to 99</td></tr>
<tr><td></td><td></td><td></td><td>Execution confirmation</td><td>“OK? [ENTER]”</td></tr>
<tr><td></td><td></td><td></td><td>Result display</td><td>“FINISH”, “DELETE FAILED”</td></tr>
<tr><td></td><td>3 OPTION MENU (T, G, E models)
4 OPTION MENU (B model)</td><td>A) DISPLAY SET</td><td>DIMMER : 0</td><td>-4 to [0], 1 step</td></tr>
<tr><td></td><td></td><td></td><td>FL SCROLL : CONT</td><td>[CONT] / ONCE</td></tr>
<tr><td></td><td></td><td></td><td>OSD SHIFT : 0</td><td>-5 to +5, [0], 1step</td></tr>
<tr><td></td><td></td><td></td><td>OSD-SOURCE : 30 s</td><td>10s / [30s] / ON</td></tr>
<tr><td></td><td></td><td></td><td>OSD-AMP : 30 s</td><td>10s / [30s] / ON</td></tr>
<tr><td></td><td></td><td>B) MEMORY GUARD</td><td>MEMORY GUARD : OFF</td><td>[OFF] / ON</td></tr>
<tr><td></td><td></td><td>C) AUDIO SELECT</td><td>DEFAULT : AUTO</td><td>[AUTO] / LAST</td></tr>
<tr><td></td><td></td><td>D) PARAM. INI</td><td></td><td>[NO] / YES</td></tr>
<tr><td></td><td></td><td>E) USB PLAY STYLE (T, G, E models)</td><td>REPEAT : OFF</td><td>[OFF] / SINGLE / ALL</td></tr>
<tr><td></td><td></td><td></td><td>SHUFFLE : OFF</td><td>[OFF] / ON</td></tr>
<tr><td>SIGNAL INFO</td><td colspan="2">1 FORMAT (Signal format)</td><td colspan="2">Analog / PCM / DolbyD / DTS / Digital / --- / ???</td></tr>
<tr><td></td><td colspan="2">2 SAMPLING</td><td colspan="2">xxx kHz</td></tr>
<tr><td></td><td colspan="2">3 CHANNEL</td><td colspan="2">3/2/0.1 (Front/Surround/LFE) / 1+1</td></tr>
<tr><td></td><td colspan="2">4 BITRATE (Bit rate)</td><td colspan="2">xxx kbps</td></tr>
<tr><td></td><td colspan="2">5 FLAG</td><td colspan="2">DolbyD / DTS / PCM / None</td></tr>
</table>

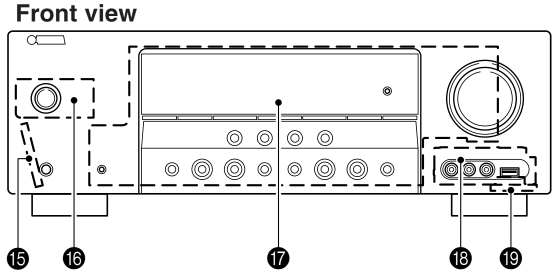
■ INTERNAL VIEW

- **Top view**

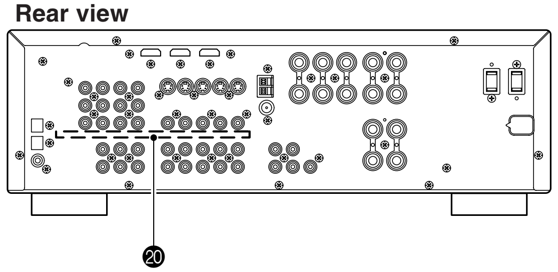




- **Front view**



- **Rear view**



❶ OPERATION (3) P.C.B.
❷ DAB P.C.B. (B model)
❸ OPERATION (4) P.C.B.
❹ VIDEO (4) P.C.B.
❺ Tuner
❻ HDMI P.C.B. (T, G, E models)
❼ VIDEO (3) P.C.B.
❽ VIDEO (1) P.C.B.
❾ DSP P.C.B.
❿ MAIN (4) P.C.B.
⓫ MAIN (1) P.C.B.
⓬ OPERATION (2) P.C.B.
⓭ OPERATION (11) P.C.B.
⓮ Power Transformer
⓯ OPERATION (6) P.C.B.
⓰ OPERATION (10) P.C.B.
⓱ OPERATION (1) P.C.B.
⓲ OPERATION (7) P.C.B. (B model)
OPERATION (8) P.C.B. (T, G, E models)
⓳ OPERATION (9) P.C.B. (T, G, E models)
⓴ VIDEO (2) P.C.B.

■ DISASSEMBLY PROCEDURES

(Remove parts in the order as numbered.)
Disconnect the power cable from the AC outlet.

1. Removal of Top Cover

a. Remove 4 screws (①), 4 screws (②) and 1 screw (③). (Fig. 1)
b. Slide the top cover rearward to remove it. (Fig. 1)

2. Removal of Front Panel Unit

a. Remove 6 screws (④). (Fig. 1)
b. Remove CB191, CB192, CB235, CB261 and CB408. (Fig. 1)
c. Remove the front panel unit. (Fig. 1)

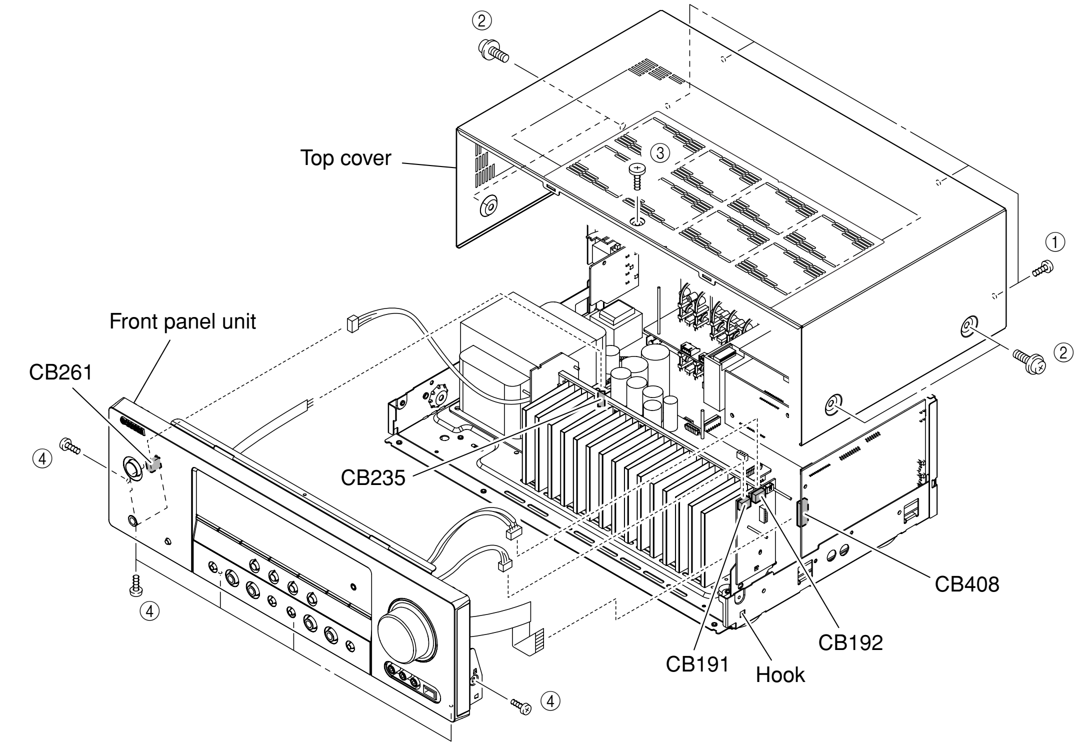


Fig. 1

3. Removal of HDMI P.C.B. (T, G, E models)

a. Remove CB905 and CB906. (Fig. 2)
b. Remove 5 screws (⑤). (Fig. 3)
c. Remove HDMI P.C.B.. (Fig. 2)

4. Removal of DAB P.C.B. (B model)

a. Remove screw (⑥). (Fig. 3)
b. Remove nut and washer. (Fig. 3)
c. Remove CB301, CB361 and CB362. (Fig. 2)
d. Remove DAB P.C.B.. (Fig. 2)

5. Removal of VIDEO (1), (2) and (3) P.C.B.s

a. Remove CB193, CB305 and CB322. (Fig. 2)
b. Remove 11 screws (⑦). (Fig. 3)
c. Remove VIDEO (1), (2) and (3) P.C.B.s. (Fig. 2)

6. Removal of DSP P.C.B.

a. Remove 18 screws (T, G, E models)/19 screws (B model) (⑧), 3 screws (⑨) and 2 screws (⑩). (Fig. 3)
b. Remove cord stopper. (Fig. 2)
c. Remove rear panel. (Fig. 2)
d. Remove CB512 and CB516. (Fig. 2)
e. Remove screw (⑪). (Fig. 2)
f. Remove the DSP P.C.B. which is connected directly to the MAIN (1) P.C.B. with connectors. (Fig. 2)

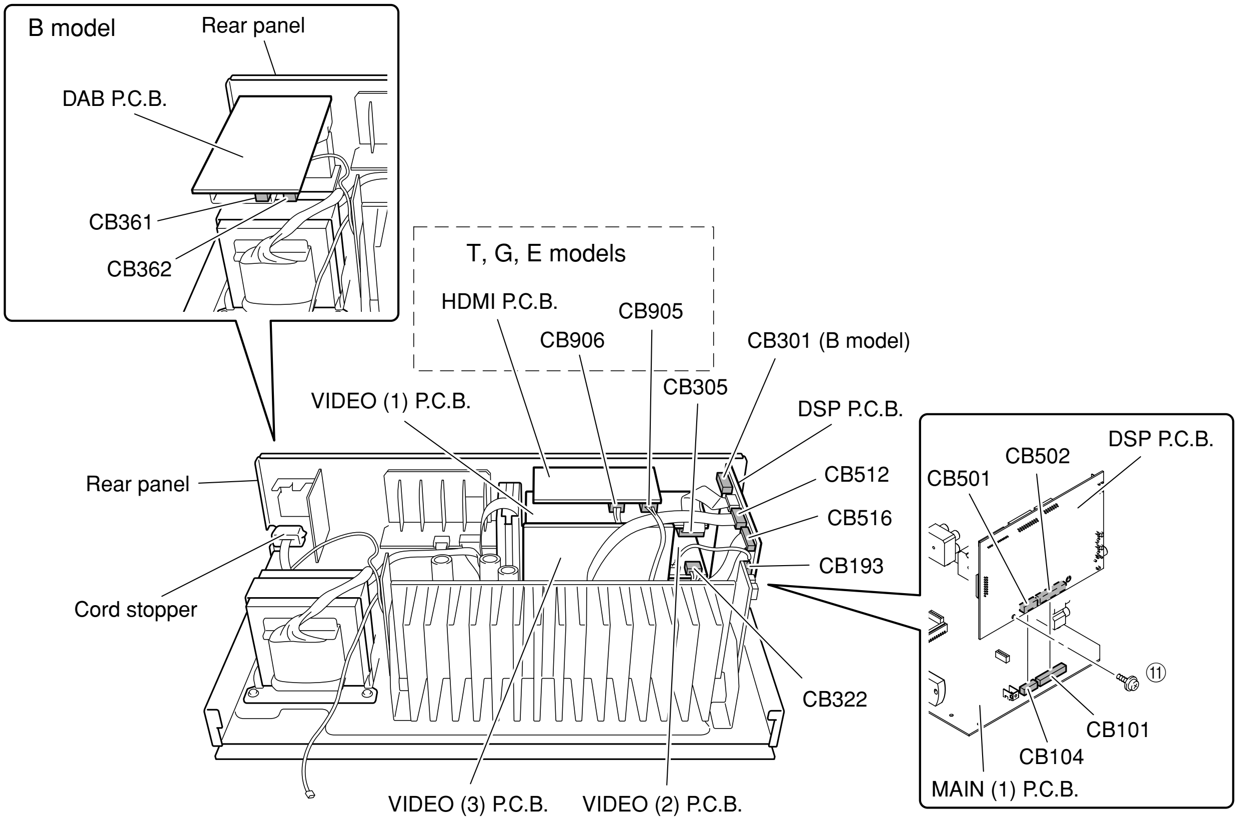

B model
Rear panel
DAB P.C.B.
CB361
CB362
T, G, E models
HDMI P.C.B.
CB905
CB906
CB301 (B model)
CB305
VIDEO (1) P.C.B.
DSP P.C.B.
Rear panel
CB512
CB516
CB193
Cord stopper
CB322
VIDEO (3) P.C.B.
VIDEO (2) P.C.B.
DSP P.C.B.
CB502
CB501
⑪
CB101
CB104
MAIN (1) P.C.B.

Fig. 2

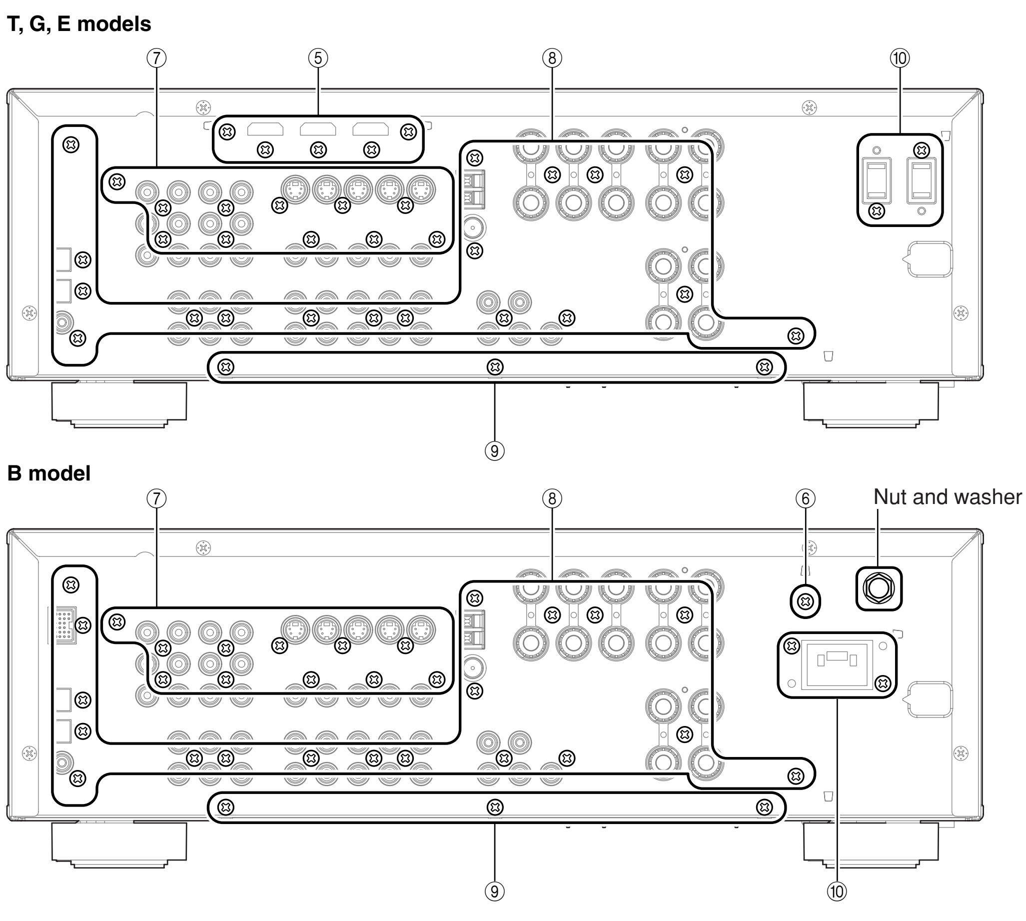

T, G, E models
⑦
⑤
⑧
⑩
⑨
B model
⑦
⑧
⑥
Nut and washer
⑨
⑩

Fig. 3

When checking the P.C.B.:

a. Remove the top cover. (Fig. 1)
b. Remove 3 screws (⑨). (Fig. 3)
c. Remove 5 screws (⑫) and 4 screws (⑬). (Fig. 4)
d. Place the P.C.B. upright. (Fig. 5)
e. The rear panel and P.C.B. removed from the chassis does not work because its grounding is loose.
Be sure to connect the ground of rear panel and MAIN (1) P.C.B. (G102, G103, G104 and G105) to the chassis with a ground lead or the like. (Fig. 5)

- Be sure to use the extension cable for servicing for the following section. (Fig. 6)
DSP P.C.B. CB408_OPERATION (1) P.C.B. CB202:
V2854400 (17P, 300mm)

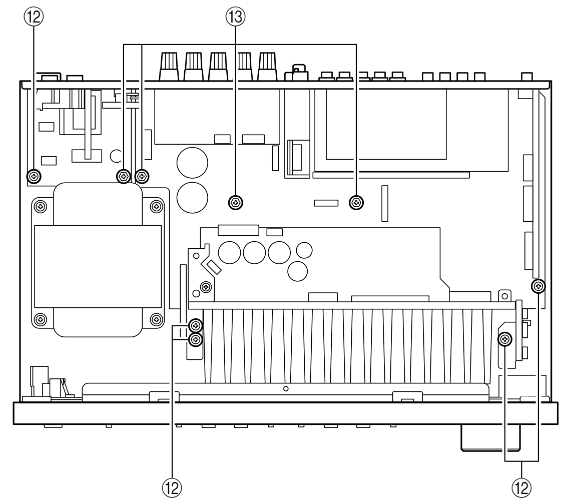


Fig. 4

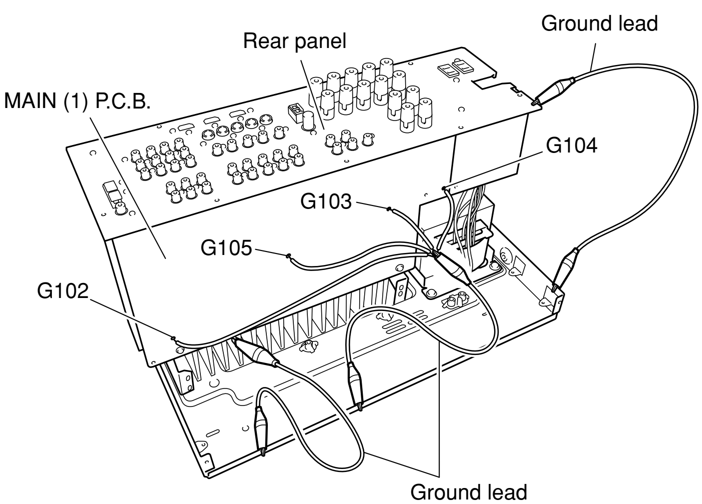


Fig. 5

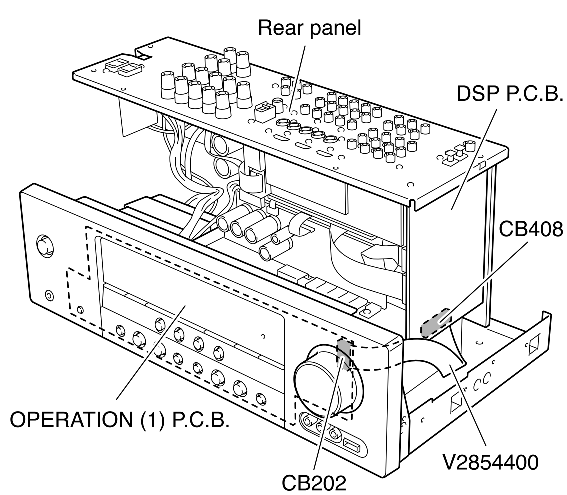


Fig. 6

■ UPDATING FIRMWARE

After replacing the following parts with the replacement part, be sure to write the latest firmware.

- DSP P.C.B.
- IC201 (DSP P.C.B.)

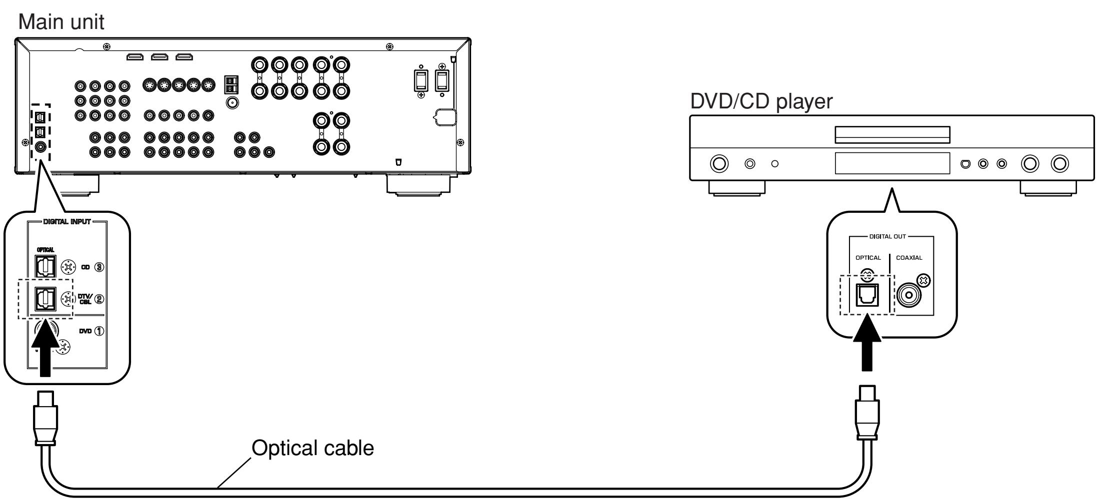
● Required Tools

- DVD or CD player (with DIGITAL OUTPUT (OPTICAL or COAXIAL) terminal)
- Optical cable (when OPTICAL terminal is used)
- Digital audio pin cable (when COAXIAL terminal is used)
- Firmware CD
  * To make the firmware CD, download the latest firmware from the specified download source to PC.

● Operation Procedures

1. Connect the main unit and DVD/CD player as shown below. (Fig. 1)

Example of OPTICAL terminal



Example of COAXIAL terminal

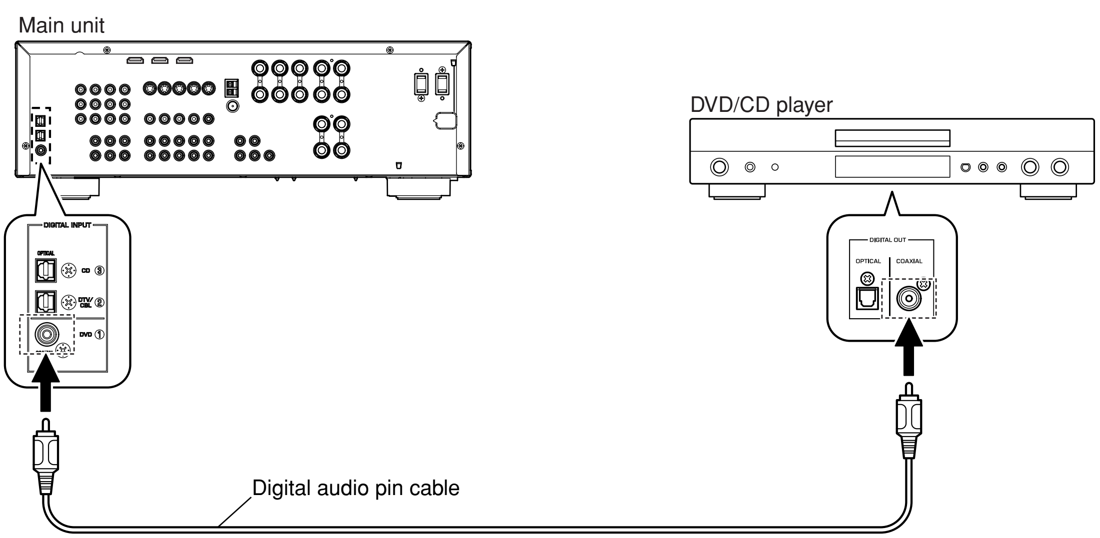


Fig. 1

2. While pressing the “STANDBY/ON” key and “SPEAKERS A/B/OFF” key of the main unit simultaneously, connect the power cable of the main unit to the AC outlet. (Fig. 2)
   The FIRMWARE UPDATE mode will then be activated and “SPDIF Upgrade” is displayed. (Fig. 2)

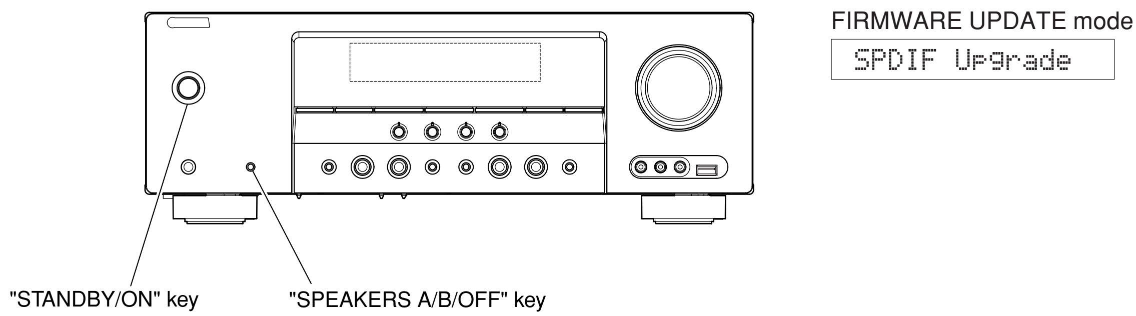


Fig. 2

3. Connect the power cable of DVD/CD player to the AC outlet.
4. Press the “STANDBY/ON” key of the DVD/CD player.
5. Press the “EJECT” key of the DVD/CD player to open the tray.
6. Put the firmware CD on the tray and close the tray.
7. Press the “PLAY” key of the DVD/CD player.
   Then writing of the firmware is started. (Fig. 3)
8. When writing of the firmware is completed, “Upgrade OK”, “Please...” and “Turn off!!” are displayed repeatedly. (Fig. 3)

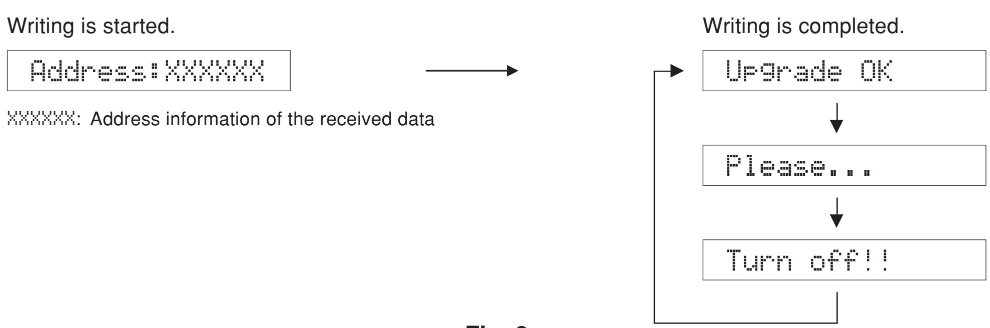


Fig. 3

* When the version of the firmware to be written is the same as the one existing in the main unit, “Same Version”, “Please...” and “Turn off!!” are displayed repeatedly. (Upgrading is not necessary.)

If the display remains unchanged for more than 10 seconds after starting the firmware CD play procedure, perform the firmware CD play procedure again from the beginning.

If “FILE CORRUPTED” is displayed after “Address:XXXXXX”, check to make sure that the written data is not corrupted and perform Steps 1 to 8 of “Operation Procedures” again.

If “Upgrade Failed” is displayed, perform Steps 1 to 8 of “Operation Procedures” again.

9. Press the “STOP” key of the DVD/CD player.
10. Press the “EJECT” key of the DVD/CD player to open the tray.
11. Remove the firmware CD from the tray and close the tray.
12. Turn off the power of the DVD/CD player and disconnect the power cable from the AC outlet.
13. Turn off the power by pressing the “STANDBY/ON” key of the main unit.

* After updating the firmware, be sure to initialize the main unit.

● Confirmation of firmware version and checksum

Confirm that the firmware version and checksum value is updated successfully with the DIAG function.
For more information, refer to “SELF DIAGNOSIS FUNCTION (DIAG)”.

* When the displayed firmware version and checksum are different from written firmware version and checksum, follow the steps from 1 to 13 of “Operation Procedures” again.

■ SELF DIAGNOSIS FUNCTION (DIAG)

This unit has self diagnosis functions that are intended for inspection, measurement and location of faulty point.
There are 18 DIAG menu items, each of which has sub-menu items.
Listed in the table below are menu items and sub-menu items.
Note that not all menu items listed will apply to the models covered in this service manual.

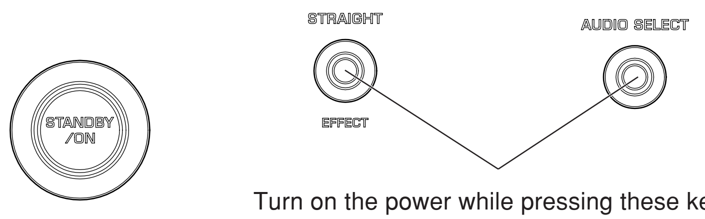
No.	DIAG menu	Sub-menu
1	BYPASS	ANLOG BYPASS
		DSP BYPASS
2	AUDIO CHECK	AUDIO CHECK
3	SPEAKERS SET	FRNT : SML 0dB
		CENTER NONE
		LFE/B : FRNT
		TONE : MAX
		TONE : MIN
4	6CH-INPUT	6ch INPUT 6-ohm
		6ch INPUT 8-ohm
		LIM : , PLDET : , THM
5	MIC CHECK	MIC CHECK
6	FL/OSD CHECK	VFD CHECK
		VFD DISP OFF
		VFD DISP ALL
		VFD DIMMER
		CHECK PATTERN
7	TEST TONE	TEST ALL
		TEST FRNT L
		TEST CENTER
		TEST FRNT R
		TEST SURR R
		TEST SURR L
		TEST LFE
8	FACTORY PRESET	PRESET INHI
		PRESET RSRV
9	AD DATA CHECK	PD : , PV :
		TH : , PL :
		PI : , DE :
		K0 : , K1 :
10	XM STATUS (Not applied to these models.)	1k – 1dB/44
		1k –61dB/44
		MUTE /44
		XM TONE /44
		ISO TONE/44
		1k – 1dB/32
		1k –61dB/32
		MUTE /32
		XM TONE /32
		ISO TONE/32
		BUS PWR : OFF
11	DOCK (B model)	DOCK :
		DOCK IGNORE
12	USB (T, G, E models)	USB FILE 1
		USB FILE 2
13	DAB (B model)	DAB SCAN
		DLS :
		Signal Q. :

No.	DIAG menu	Sub-menu
14	IF STATUS (Not applied to these models.)	IF 1
		IF 2
		IF 3
		IF 4
		IF 5
		IF 6
		IF 7
		IF 8
		IF 9
		IF 10
		IF 11
		IF 12
		IF 13
		IF 14
		IF 15
		IF 16
		IF 17
15	PROTECTION	PRD L :
		PRD H :
		PRV L :
		PRV H :
		THM :
		PLD8 L :
		PLD8 H :
		PLD6 L :
		PLD6 H :
		PRI
		PDET
16	PROTECTION HISTORY	History 1
		History 2
		History 3
		History 4
17	SOFT SWITCH	SW MODE
		MODEL
		DESTINATION
		TUNER DESTINATION
		VIDEO FORMAT
		AAC (Not applied to these models.)
		OSD
		YPAO
		RDS
		XM (Not applied to these models.)
		DAB (B model)
		USB (T, G, E models)
		DOCK (iPod) (B model)
18	ROM VER/SUM	VERSION
		ALL CHECKSUM
		PROGRAM CHECKSUM
		SPI CHECKSUM
		SPD CHECKSUM
		XM VERSION (Not applied to these models.)
		DAB VERSION
		FlashROM TEST
		SDRAM TEST
		EEPROM TEST

- **Starting DIAG**

Press the "STANDBY/ON" key while simultaneously pressing those two keys of the main unit as indicated in the figure below.

Keys of main unit



Turn on the power while pressing these keys.

- **Starting DIAG in the protection cancel mode**

If the protection function works and causes hindrance to trouble diagnosis, cancel the protection function as described below, and it will be possible to enter the DIAG mode. (The protection functions other than the excess current detect function will be disabled.)

Press the "STANDBY/ON" key while simultaneously pressing those two keys indicated in the figure above. At this time, keep pressing those two keys for 3 seconds or longer.
In this mode, the [SLEEP] segment of the FL display of the main unit flashes to indicate that the mode is DIAG mode with the protection functions disabled.

CAUTION!
Using this product with the protection function disabled may cause damage to the main unit. Use special care for this point when using this mode.

- **Canceling DIAG**

1. Before canceling DIAG, execute setting for FACTORY PRESET of DIAG menu No.8 (Memory initialization inhibited or Memory initialized).
   * In order to keep the user memory stored, be sure to select PRESET INHIBITED (Memory initialization inhibited).
2. Turn off the power by pressing the "STANDBY/ON" key of the main unit.

- **Display provided when DIAG started**

On the FL display of the main unit, an opening message (including the protection history) appears for a few seconds followed by the DIAG menu display (1. ANALOG BYPASS).

When there is no history of protection function:

Opening message — When there is no protection history: `NO PROTECTION`

After a few seconds →

DIAG menu display: `1.ANLOG BYPASS`

When there is a history of protection function:

When there is a history of protection function due to excess current

`PRI PRT:xxx` — xxx: AD value when the protection function is working

Cause: An excessive current flowed through the power amplifier.
Supplementary information:
As current of the power amplifier is detected, the abnormal channel can be identified by checking the current detect transistor.
Turning on the power without correcting the abnormality will cause the protection function to work immediately and the power supply will instantly be shut off.

Note)
- **Applying the power to the main unit without correcting the abnormality can be dangerous and cause additional circuit damage. To avoid this, if "PRI" and "PRD" protection function has been activated 3 times continuously, the power will not turn on even when the "STANDBY/ON' key is pressed. In order to turn on the power again, disconnect the power cable of the main unit from the AC outlet once and then reconnect it again.**
- **The output transistors in each amplifier channel should be checked for damage before applying power of the main unit.**
- **Amplifier current should be monitored by measuring across the emitter resistors for each channel.**

When there is a history of protection function due to abnormal DC output

`PRD PRT:xxx` — xxx: AD value when the protection function is working

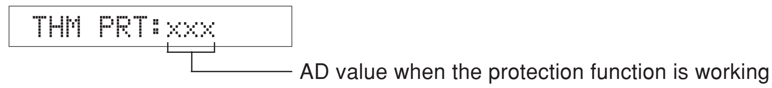
Cause: DC output of the power amplifier is abnormal.
Supplementary information:
The protection function worked due to a DC voltage appearing at the speaker terminal.
A cause could be a defect in the amplifier.
If the power is turned on with the abnormality unsolved, the protection function works in about 3 seconds to turn off the power.

When there is a history of protection function due to abnormal voltage in the power supply section

`PRV PRT:xxx` — xxx: AD value when the protection function is working

Cause: The voltage in the power supply section is abnormal.
Supplementary information:
The protection function worked due to a defect or overload in the power supply.
If the power is turned on with the abnormality unsolved, the protection function works in about 1 second to turn off the power.

When there is a history of protection function due to excessive heat sink temperature



Cause: The temperature of the heat sink is excessive.

Supplementary information:

The protection function worked due to the temperature limit being exceeded.
Causes could be poor ventilation or a defect related to the thermal sensor.

If the power is turned on with the abnormality unsolved, the protection function works in about 1 second to turn off the power.
For detection of each protection function, refer to DIAG menu described later.

History of protection function

When the protection function has worked, its history is stored in memory with a backup.
Even if no abnormality is noted while servicing the unit, an abnormality which has occurred previously can be defined as long as the backup data has been stored.
The history of the protection function is cleared when DIAG is cancelled by selecting PRESET RESERVED (Memory initialized) of DIAG menu No. 8 or when the backup data is erased.

• Operation procedure of DIAG menu and Sub-menu

There are 18 menu items, each of having sub-menu items.

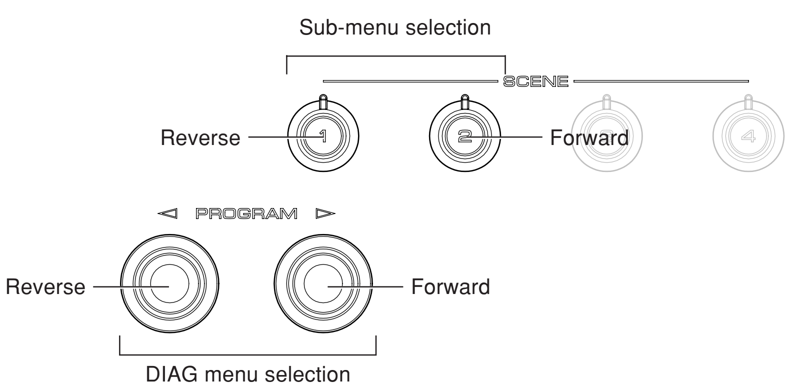
DIAG menu selection:

Select the menu using “>” (forward) and “<” (reverse) keys of PROGRAM.

Sub-menu selection:

Select the sub-menu using “SCENE 2” (forward) and “SCENE 1” (Reverse) keys.

Keys of main unit



• Functions in DIAG mode

In addition to the DIAG menu items, functions as listed below are available.

- Power on/off
- Master volume
- Muting
- Speakers A/B/OFF
- Input selection
- Audio select
- Tone control

* Functions related to the tuner and the set menu are not available.

• Initial settings used to start DIAG

The following initial settings are used when starting DIAG.
When DIAG is canceled, these settings are restored to those before starting DIAG.

- Master volume: -20 dB
- Input: DVD (MULTI CHANNEL INPUT OFF)
- Effect level: 0 dB
- DIAG menu: 1. ANALOG BYPASS

• Details of DIAG menu

1. BYPASS

Using the sub-menu, it is possible to select ANALOG BYPASS output or DSP BYPASS output.

ANALOG BYPASS

The analog input sound signal is output to FRONT L/R with EFFECT OFF.

1.ANLOG BYPASS

INPUT: DVD ANALOG
SPEAKER OUT: 1 kHz, SUBWOOFER OUTPUT: 50 Hz

Input level	Volume	SPEAKER OUT			SUBWOOFER OUTPUT
		FRONT	CENTER	SURROUND	
Both ch, -20 dBm	+6.0 dB	+11.5 dBm	-∞	-∞	-∞

DSP BYPASS

The digital input sound signal is output to FRONT L/R with EFFECT OFF.

1.DSP BYPASS

INPUT: DVD ANALOG
SPEAKER OUT: 1 kHz, SUBWOOFER OUTPUT: 50 Hz

Input level	Volume	SPEAKER OUT			SUBWOOFER OUTPUT
		FRONT	CENTER	SURROUND	
Both ch, -20 dBm	+6.0 dB	+11.5 dBm	-∞	-∞	-∞

2. AUDIO CHECK

The input sound signal is output.

* When the inputted sound signal is 2 ch L/R, it is distributed as follows when output.

L ch: FRONT L, CENTER, SURROUND L,
LFE (L ch +10 dB)
R ch: SURROUND R

2.AUDIO CHECK

INPUT: DVD ANALOG
SPEAKER OUT: 1 kHz, SUBWOOFER OUTPUT: 50 Hz

Input level	Volume	SPEAKER OUT			SUBWOOFER OUTPUT
		FRONT	CENTER	SURROUND	
Both ch, -20 dBm	+6.0 dB	+11.5 dBm	+11.5 dBm	+11.5 dBm	0 dBm

3. SPEAKER SET

The analog switch settings for each sub-menu are as shown in the table below.

Sub-menu				
FRONT : SML 0dB	SMALL	LARGE	LARGE	SWFR
CENTER : NONE	LARGE	NONE	LARGE	SWFR
LFE/B : FRNT	LARGE	SMALL	SMALL	FRONT
TONE : MAX	LARGE	LARGE	LARGE	SWFR
TONE : MIN	LARGE	LARGE	LARGE	SWFR

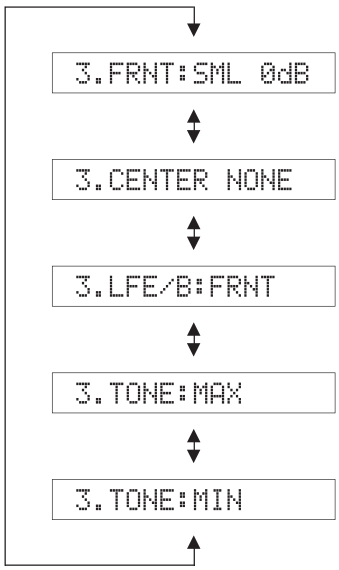
LARGE: This mode is used for a speaker with high bass reproduction performance (a large unit). Full bandwidth signals are output.

SMALL: This mode is used for a speaker with low bass reproduction performance (a small unit). The signals of 90 Hz or less are mixed into the channel specified by LFE/BASS.

NONE: This mode is used for no center speaker. The center content is reduced by 3 dB and distributed to FRONT L/R.

SWFR: LFE of 5.1 ch signal or LFE/BASS lower than 90 Hz is output through SUBWOOFER OUT.

FRONT: LFE of 5.1 ch signal or LFE/BASS lower than 90 Hz is distributed to FRONT L/R.



FRONT: SML 0dB
The FRONT L/R signal, when 90 Hz or lower, is mixed to the channel specified by LFE/BASS.

CENTER: NONE
The CENTER signal is distributed to FRONT L/R.

LFE / BASS: FRONT
The LFE (SUBWOOFER) signal is distributed to FRONT L/R.

TONE: MAX
The signal is output with the tone control [BASS +10 dB, TREBLE + 10 dB].

TONE: MIN
The signal is output with the tone control [BASS -10 dB, TREBLE - 10 dB].

INPUT: DVD ANALOG
SPEAKER OUT: 1 kHz, SUBWOOFER OUTPUT: 50 Hz

Sub-menu	Input level	Volume	SPEAKER OUT			SUBWOOFER OUTPUT
			FRONT	CENTER	SURROUND	
FRONT : SML 0dB	Both ch, -20 dBm	+6.0 dB	+11.5 dBm	-∞	-∞	-3.5 dBm
CENTER : NONE	Both ch, -20 dBm	+6.0 dB	+11.5 dBm	-∞	-∞	-∞
LFE/B : FRNT	Both ch, -20 dBm	+6.0 dB	+11.5 dBm	-∞	-∞	-∞
TONE : MAX	Both ch, -20 dBm	+6.0 dB	+14.5 dBm	-∞	-∞	-∞
TONE : MIN	Both ch, -20 dBm	+6.0 dB	+8.5 dBm	-∞	-∞	-∞

4. 6CH INPUT

The input source [MULTI CHANNEL INPUT] is selected.
It is possible to select the 6-ohm/8-ohm by using the sub-menu.

6 ch INPUT 6-ohm

`4.6ch INPUT 6Ω`

INPUT: MULTI CH INPUT
SPEAKER OUT: 1 kHz, SUBWOOFER OUTPUT: 50 Hz

Sub-menu	Input level	Volume	SPEAKER OUT			SUBWOOFER OUTPUT
			FRONT	CENTER	SURROUND	
6 ch INPUT 6-ohm	Both ch, -20 dBm	+6.0 dB	+11.5 dBm	+11.5 dBm	+11.5 dBm	-3.5 dBm

6 ch INPUT 8-ohm

`4.6ch INPUT 8Ω`

INPUT: MULTI CH INPUT
SPEAKER OUT: 1 kHz, SUBWOOFER OUTPUT: 50 Hz

Sub-menu	Input level	Volume	SPEAKER OUT			SUBWOOFER OUTPUT
			FRONT	CENTER	SURROUND	
6 ch INPUT 8-ohm	Both ch, -20 dBm	+6.0 dB	+11.5 dBm	+11.5 dBm	+11.5 dBm	-3.5 dBm

LIM/PLDET/THM

LIM: Setting value of LIM (Limiter control)

* As this is a development menu, do not change the setting value.

PLDET: Power limiter detection
The A/D conversion value during operation is displayed.

THM: Thermo protection detection
The A/D conversion value during operation is displayed.
(Reference voltage: 3.3 V=255)

`4.255:255: 69`

THM (Thermo protection detection)
PLDET (Power limiter detection)
LIM (Limiter control)

5. MIC CHECK

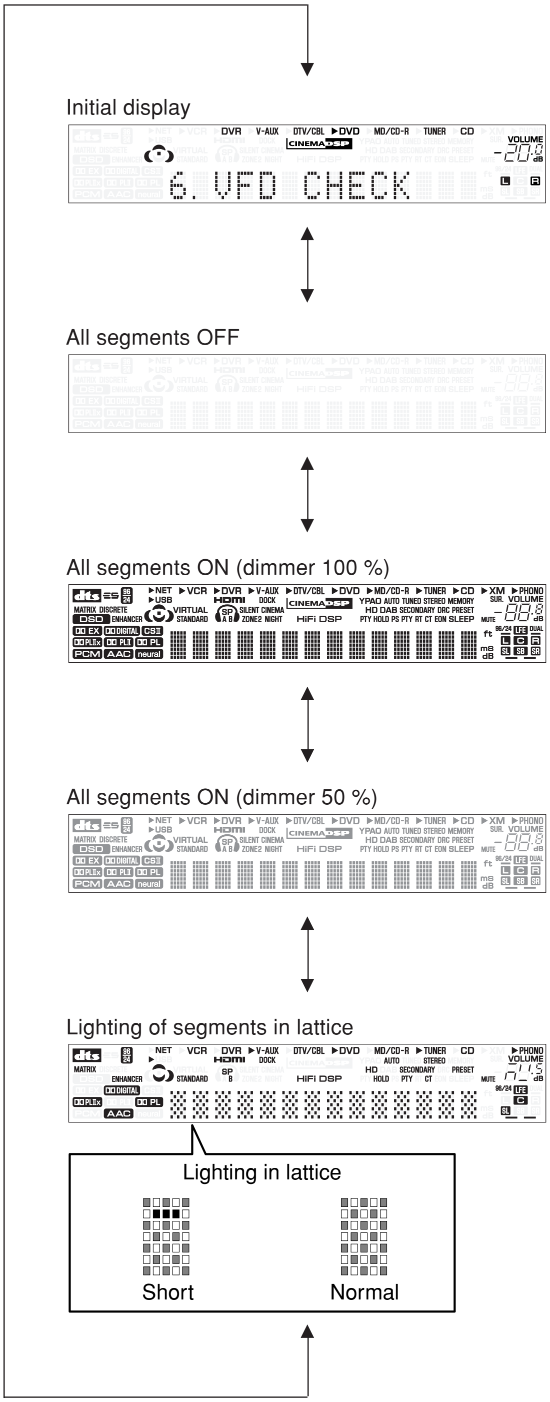
The signals input through the microphone are output of FRONT L/R via A/D and D/A.

`5.MIC CHECK`

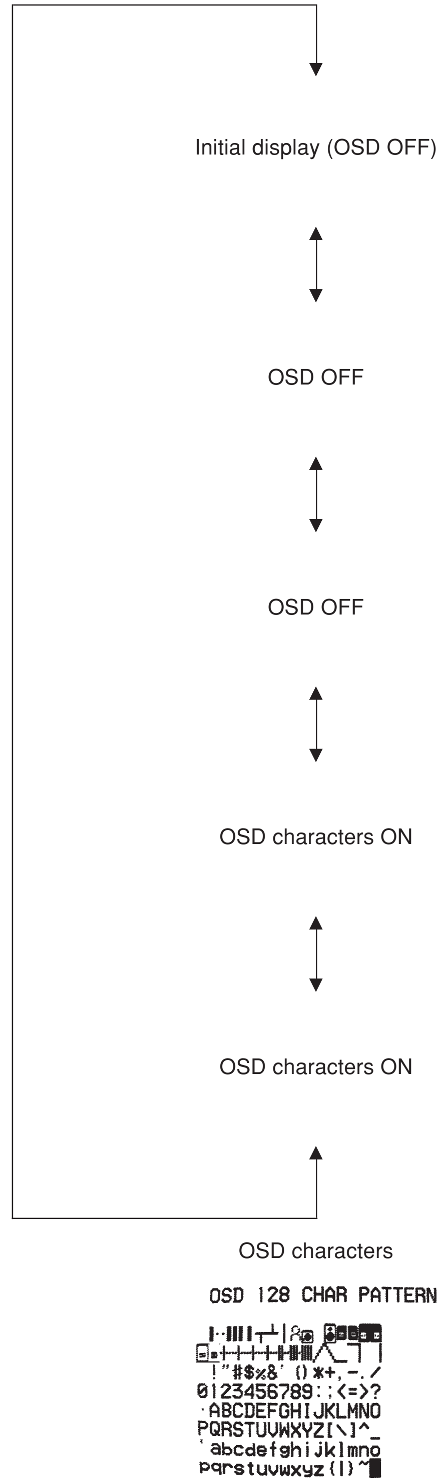
6. FL/OSD CHECK

Use this program to check the FL display section and video control section. When checking the video control section, prepare a monitor, S video cable and video pin cable and connect them.
Using the sub-menu operation, selection items of the FL display section and video display section vary as shown below.
For audio signal processing, use STRAIGHT.

Checking FL display section



Check of the Video control section. (Monitor out)



7. TEST TONE

The noise generator with a built-in microprocessor outputs the noise through the channels specified by the submenu.
The noise frequency for LFE (SUBWOOFER) is 35 to 80 Hz.
Other than that, the noise frequency is 500 to 2 kHz.

Display	Description
7.TEST ALL	**TEST ALL** Noise is output from all channels.
7.TEST FRNT L	**TEST FRONT L** Noise is output from the FRONT L channel.
7.TEST CENTER	**TEST CENTER** Noise is output from the CENTER channel.
7.TEST FRNT R	**TEST FRONT R** Noise is output from the FRONT R channel.
7.TEST SURR R	**TEST SURROUND R** Noise is output from the SURROUND R channel.
7.TEST SURR L	**TEST SURROUND L** Noise is output from the SURROUND L channel.
7.TEST LFE	**TEST LFE (SUBWOOFER)** Noise is output from the LFE (SUBWOOFER) channel.

8. FACTORY PRESET

This menu is used to reserve and inhibit initialization of the back-up RAM.
The signals are processed using EFFECT OFF (The L/R signal is output using ANALOG BYPASS).

Display	Description
8.PRESET INHI	**PRESET INHIBIT (Initialization inhibited)** Back-up RAM initialization is not executed. Select this sub-menu to protect the values set by the user.
8.PRESET RSRV	**PRESET RESERVED (Initialization reserved)** Initialization of the back-up RAM is reserved. (Actually, initialization is executed the next time that the power is turned on.) Select this sub-menu to reset to the original factory settings or to reset the RAM. Any protection history will be cleared.

CAUTION: Before setting to the PRESET RESERVED, write down the existing preset memory content of the tuner in a table as shown below.
(This is because setting to the PRESET RESERVED will cause the user memory content of the tuner to be erased.)

Preset Group	P1	P2	P3	P4	P5	P6	P7	P8
A								
B								
C								
D								
E								

9. A/D DATA CHECK

This menu is used to display the A/D conversion value of the microprocessor which detects panel keys of the main unit and protection functions in using the sub-menu.
When K0/K1 menu is selected, keys become non-operable due to detection of the values of all keys. However, it is possible to advance to the next sub-menu by turning the VOLUME of the main unit. When using this function, note that turning the VOLUME more than 1 click would cause the volume value to change.
During signal processing, the condition before execution is maintained.
* The figures in the diagram are given as reference only.

PD/PV

PD: PRD (Power amplifier DC protection detection)
The output of power amplifier DC (DC voltage) is detected.
Normal value: 35 to 81 (Reference voltage: 3.3 V=255)

PV: PRV (Voltage protection detection)
Voltage detects: ACL, AC2, 10V, S9, +12, -12, +5V and VP
Normal value: 84 to 153 (Reference voltage: 3.3 V=255)

* If PRD and PRV are out of the normal value range, the protection function works to turn off the power.

`PD: 58 PV:119`

TH/PL

TH: THM (Thermo protection detection)
The temperature of the heat sink is detected.
Normal value: 0 to 124 (Reference voltage: 3.3 V=255)

* If THM is out of the normal value range, the protection function works to turn off the power.

PL: PLDET (Power limiter detection)
The output voltage of power amplifier is detected.

`TH: 69 PL:255`

Reference voltage: 3.3 V=255

	During normal operation	Value for starting limiter operation	Value for canceling limiter operation
PLDET	255	100	131
LIM H: 255 / L: 90	H	L	H

(LIM: Limiter control)

PI/DE

PI: PRI (Current protection detection)
The current of the power amplifier is detected.
Normal value: 0 to 100 (Reference voltage: 3.3 V=255)

DE: PDET (Sub-trans power detection)
Normal value: 209 to 255 (Reference voltage: 3.3 V=255)

* If PRI and PDET are out of the normal value range, the protection function works to turn off the power.

`PI:  6 DE:255`

K0/K1

K0/K1: KEY0/KEY1 (Panel key of main unit)
A/D value of the key fails to function properly when the standard value is deviated by ± 4. In this case, check the constant of partial pressure resistor, solder condition, etc. Refer to table.
(Reference voltage: 3.3 V=255)

`K0:254 K1:255`

Display	KEY0	KEY1
23 ± 4	SCENE 1	SCENE 3
42 ± 4	SCENE 2	SCENE 4
66 ± 4	PROGRAM <	DIRECT
92 ± 4	PROGRAM >	AUDIO SELECT
120 ± 4	STRAIGHT	INPUT <
147 ± 4	TONE CONTROL	INPUT >
165 ± 4	SEARCH MODE	PRESET/TUNING <
182 ± 4	FM/AM	PRESET/TUNING >
198 ± 4	A/B/C/D/E	MEMORY
217 ± 4	SPEAKERS	TUNING
255	(KEY OFF)	(KEY OFF)

10. XM STATUS

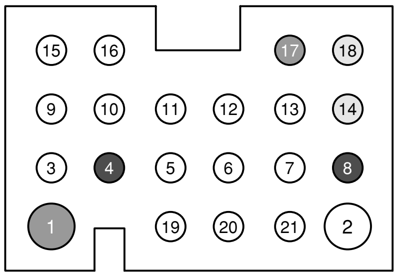
Not applied to these models.

Display	Description
10.1k - 1dB/44	1 kHz, -1 dB / 44.1 kHz
10.1k -61dB/44	1 kHz, -61 dB / 44.1 kHz
10.MUTE /44	Mute / 44.1 kHz
10.XM TONE /44	XM tone / 44.1 kHz
10.ISO TONE/44	ISO tone / 44.1 kHz
10.1k - 1dB/32	1 kHz, -1 dB / 32.0 kHz
10.1k -61dB/32	1 kHz, -61 dB / 32.0 kHz
10.MUTE /32	Mute / 32.0 kHz
10.XM TONE /32	XM tone / 32.0 kHz
10.ISO TONE/32	ISO tone / 32.0 kHz
10.BUS PWR:OFF	XM bus power: OFF

11. DOCK (B model)

This menu is used to test the DOCK connector without the iPod itself.
After turning off the power, short between pins No. 14 (TX) and No. 18 (RX), between pins No. 1 (PWR) and No. 17 (ACCPOW) and between pins No. 4 (iPDET) and No. 8 (DGND).
Start the DIAG function and select the menu.
The check result is displayed according to the following display specifications.

Note) Be sure to return the shorted locations to their original state.



DOCK

11.DOCK:NG NNN

All Y = “OK”
Others = “NG”

Check item	Result		Display
UART loop back test	OK		Y
	NG		N
iPAP (iPod accessory power) detection	IC402 pin No. 1	High	Y
		Low	N
iPDET (iPod installation to DOCK) detection	IC402 pin No. 12	Low	Y
		High	N

DOCK ignore

When DOCK and iPod are connected, the input source [DOCK (iPod)] is made invalid and [V-AUX] is selected.

11.DOCK IGNORE

12. USB CHECK

The music file recorded in the USB flash memory is reproduced.

- The music file is copied into the roof folder of the USB flash memory.
- Insert the USB flash memory to the USB terminal of the main unit.

USB FILE /

Unconnected/No music file

USB FILE1

The first piece of the music file is reproduced.

USB FILE1/OK

OK : Connected/Playback
NG : No music file

USB FILE2

The second piece of the music file is reproduced.

USB FILE2/OK

OK : Connected/Playback
NG : No music file

13. DAB CHECK (B model)

Using the DIAG menu, it is possible to select DAB SCAN, DLS, SIGNAL QUALITY.

DAB SCAN/SCL

The channel that can be received is searched. When reception is completed the SCL (Service Label) is displayed.

Display	
DAB SCAN xxx%	Scanning ...
↓	
SCL: xxxxx	Display of service label.

DLS (Dynamic Label Segment)

DLS (Dynamic Label Segment) of the channel being received is displayed.

`DLS:xxxxx`

SIGNAL QUALITY

The reception level of the channel being received is displayed.

`Signal Q.: xxx`

14. IF STATUS (Input function status)

Not applied to these models.

`14.IF 1` ← ······· → `14.IF 17`

15. PROTECTION SETTING

The A/D setting value of each protection is displayed.
(Reference voltage: 3.3 V=255)

Display	Description
15.PRD L : 35	**PRD (Amplifier DC protection) Low** The minimum preset value of PRD is displayed.
15.PRD H : 81	**PRD (Amplifier DC protection) High** The maximum preset value of PRD is displayed.
15.PRV L : 83	**PRV (Voltage protection) Low** The minimum preset value of PRV is displayed.
15.PRV H : 153	**PRV (Voltage protection) High** The maximum preset value of PRV is displayed.
15.THM : 128	**THM (Thermo protection) High** The maximum preset value of THM is displayed.
15.PLD8 L: 100	**PLD (PLDET (Power limiter detection)) 8-ohm Low** The value for starting limiter operation of PLD8 is displayed.
15.PLD8 H: 131	**PLD (PLDET (Power limiter detection)) 8-ohm High** The value for canceling limiter operation of PLD8 is displayed.
15.PLD6 L: 100	**PLD (PLDET (Power limiter detection)) 6-ohm Low** The value for starting limiter operation of PLD6 is displayed.
15.PLD6 H: 131	**PLD (PLDET (Power limiter detection)) 6-ohm High** The value for canceling limiter operation of PLD6 is displayed.
15.PRI 100	**PRI (Amplifier current protection) High** The maximum preset value of PRI is displayed.
15.PDET 209	**PDET Low** The minimum preset value of PDET is displayed.

16. PROTECTION HISTORY

Four protection histories are displayed.

Display	
Example: 16.PRI: 90	History 1
Example: 16.PRD: 34	History 2
Example: 16.THM: 60	History 3
Example: 16.NO PROT	History 4

17. SOFT SWITCH

Note) As this is a development menu, do not change the function setting.
Changing the function setting may hinder the proper operation.

This menu is used to switch the function settings on P.C.B. through the software to activate the main unit. The protection function follows the P.C.B. settings.

* As this is a development menu, it is not possible to describe the details.

Display	
17.MODE:PCB	**Switch mode**
17.MODEL:461	**Model**
17.DEST : GE	**Destination**
17.TUNER:ATKBG	**Tuner destination**
17.VIDEO: PAL	**VIDEO format**
17.AAC : NOT	**AAC**
17.OSD : AVAIL	**OSD**
17.YPAO: AVAIL	**YPAO**
17.RDS : AVAIL	**RDS**
17.XM : NOT	**XM**
17.DAB : AVAIL	**DAB (B model)**
17.USB : AVAIL	**USB (T, G, E models)**
17.DOCK: AVAIL	**DOCK (iPod) (B model)**

18. ROM VER/SUM

The version and checksum are displayed. The signal is processed using EFFECT OFF.

```
18. VER.  B112
```

Version
Firmware version of microprocessor is displayed.

```
18.A.SUM:CE61
```

All checksum
Checksum value of microprocessor is displayed.

```
18.P.SUM:F584
```

Program checksum
Checksum value of application and standby code program is displayed.

```
18.SPI.S:F031
```

SPI (Serial Peripheral Interface) checksum
Checksum value of SPI firmware update code is displayed.

```
18.SPD.S:95F8
```

SPD (S/PDIF) checksum
Checksum value of SPD firmware update code is displayed.

```
18. XM  :XM09
```

XM version
Firmware version of XM is displayed. (Not applied to these models.)

```
18.DAB:FS2023_
```

DAB module version (B model)
Firmware version of DAB module is displayed.

```
FROM TEST:
```

FlashROM test
The read/write test of microprocessor (IC101 DSP P.C.B.) and flash ROM (IC201 DSP P.C.B.).
NoEr: No error detected **NG:** An error is detected

```
DRAM TEST:
```

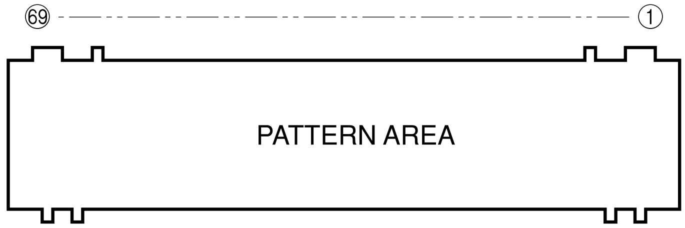
SDRAM test
The read/write test of microprocessor (IC101 DSP P.C.B.) and SDRAM (IC202 DSP P.C.B.).
NoEr: No error detected **NG:** An error is detected

```
PROM TEST:
```

EEPROM test
The read/write test of microprocessor (IC101 DSP P.C.B.) and EEPROM (IC102 DSP P.C.B.).
NoEr: No error detected **NG:** An error is detected

■ DISPLAY DATA

● V2001 : 17-BT-29GNK (OPERATION P.C.B.)



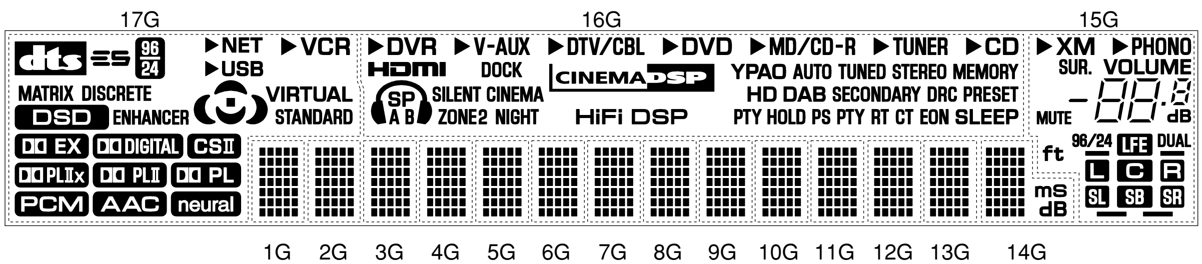
● PIN CONNECTION

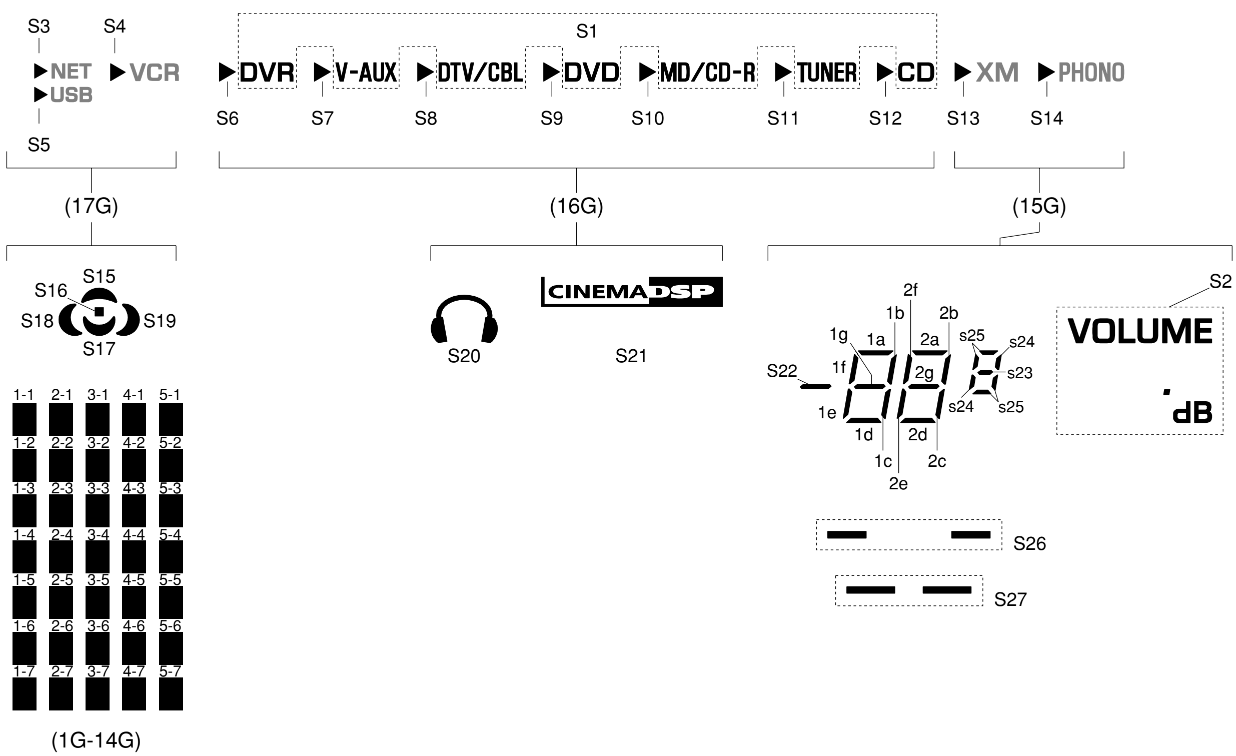
Pin No.	69	68	67	66	65	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35
Connection	F2	NX	NP	NP	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	P24	P25	P26	P27	P28	P29	P30	P31

Pin No.	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Connection	P32	P33	P34	P35	P36	P37	NX	NX	NX	NX	NX	NX	NX	17G	16G	15G	14G	13G	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G	NP	NP	NX	F1

Note : 1) F1, F2 ..... Filament pin 2) NP ..... No pin 3) NX ..... No extend pin 4) 1G~17G ..... Grid pin

● GRID ASSIGNMENT



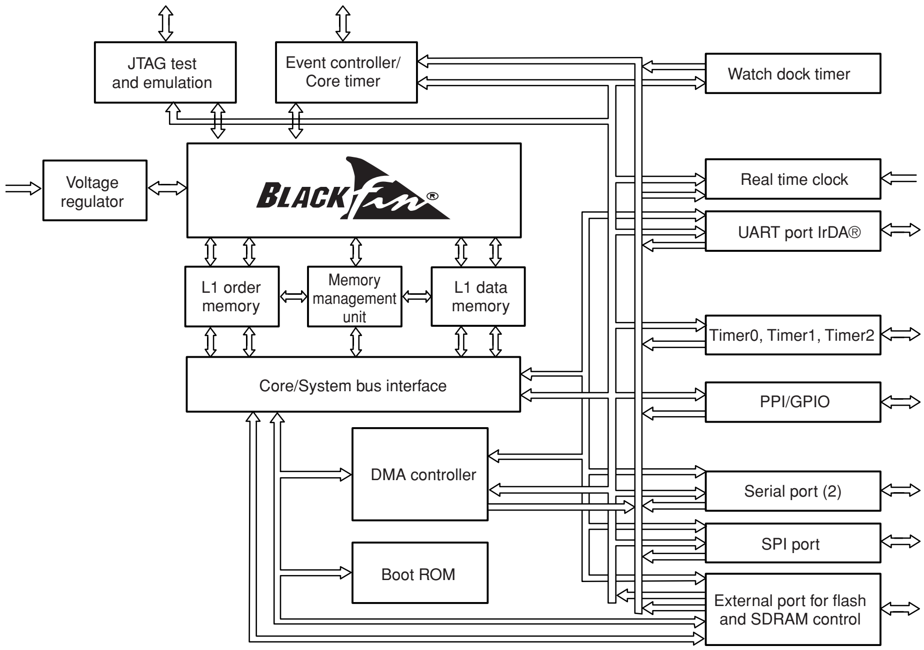


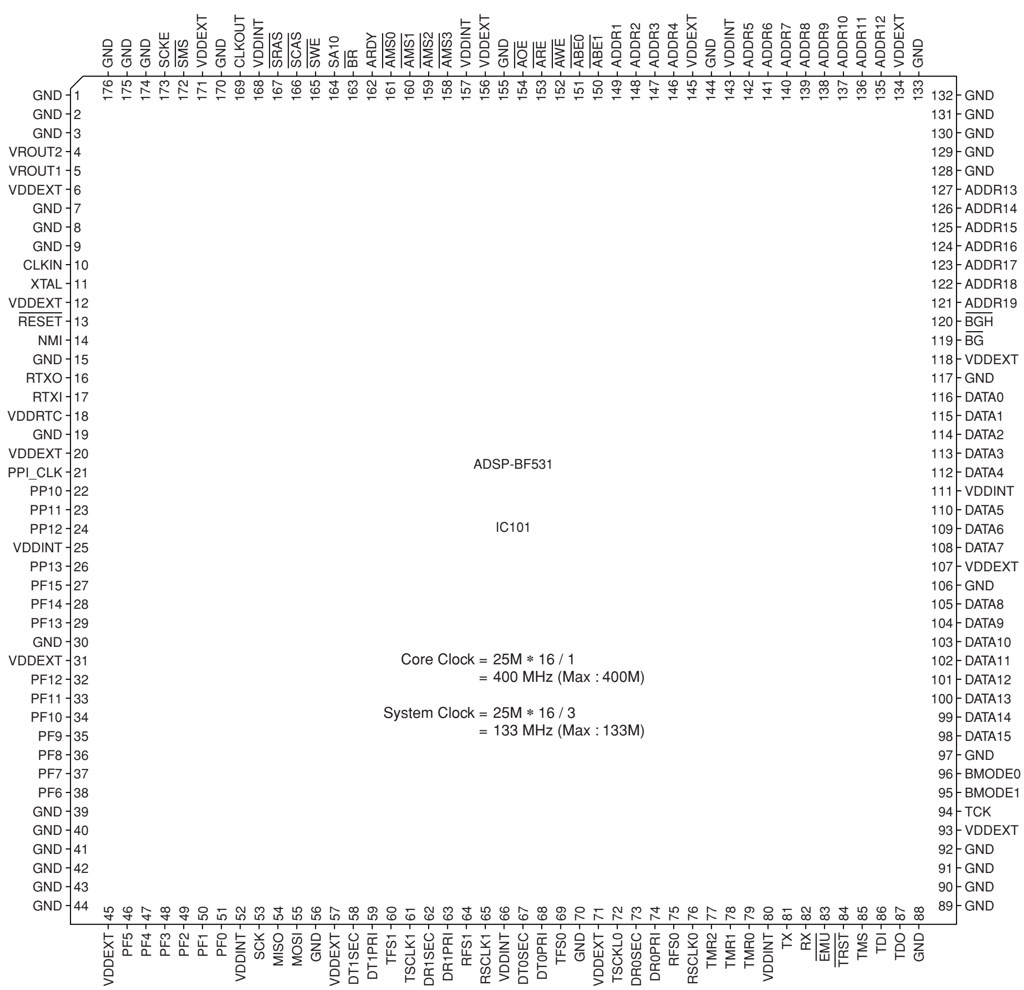
● **ANODE CONNECTION**

	17G	16G	15G	14G	13G-1G
1P	dts	S1	S2	1-1	1-1
2P	ES	S6	S26	2-1	2-1
3P	MATRIX	S7	S27	3-1	3-1
4P	DISCRETE	S8	S22	4-1	4-1
5P	96/24	S9	1a	5-1	5-1
6P	DSD	S10	1b	1-2	1-2
7P	ENHANCER	S11	1c	2-2	2-2
8P	DD EX	S12	1d	3-2	3-2
9P	DD DIGITAL	HDMI	1e	4-2	4-2
10P	CSII	S20	1f	5-2	5-2
11P	DD PLIIx	SP	1g	1-3	1-3
12P	DD PLII	A	2a	2-3	2-3
13P	DD PL	B	2b	3-3	3-3
14P	PCM	SILENT CINEMA	2c	4-3	4-3
15P	AAC	ZONE2	2d	5-3	5-3
16P	neural	NIGHT	2e	1-4	1-4
17P	NET	DOCK	2f	2-4	2-4
18P	USB	S21	2g	3-4	3-4
19P	VCR	HiFi DSP	S23	4-4	4-4
20P	S3	YPAO	S24	5-4	5-4
21P	S5	AUTO	S25	1-5	1-5
22P	S4	TUNED	XM	2-5	2-5
23P	S15	STEREO	PHONO	3-5	3-5
24P	S16	MEMORY	S13	4-5	4-5
25P	S17	HD	S14	5-5	5-5
26P	S18	DAB	SUR.	1-6	1-6
27P	S19	SECONDARY	MUTE	2-6	2-6
28P	VIRTUAL	DRC	DUAL	3-6	3-6
29P	STANDARD	PRESET	96/24	4-6	4-6
30P	–	PTY (HOLD)	ft	5-6	5-6
31P	–	HOLD	LFE	1-7	1-7
32P	–	PS	L	2-7	2-7
33P	–	PTY	C	3-7	3-7
34P	–	RT	R	4-7	4-7
35P	–	CT	SL	5-7	5-7
36P	–	EON	SB	ms	–
37P	–	SLEEP	SR	dB	–

■ IC DATA

IC101: ADSP-BF531 CPU (DSP P.C.B.)
Microprocessor with DSP





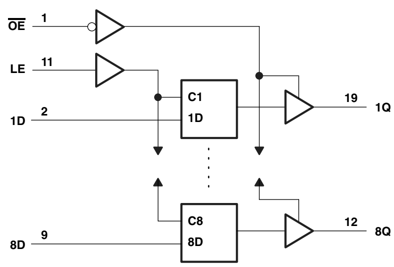
Pin No.	Port Name	Function Name	I/O	Detail of Function
1	GND	DGND	–	Ground of external
2	GND	DGND	–	Ground of external
3	GND	DGND	–	Ground of external
4	VROUT2	/VINTSW	O	Voltage regulator drive for Q101
5	VROUT1	/VINTSW	O	Voltage regulator drive for Q101
6	VDDEXT	VDDEXT	–	I/O power supply (EX3.3)
7	GND	DGND	–	Ground of external
8	GND	DGND	–	Ground of external
9	GND	DGND	–	Ground of external
10	CLKIN	CLKIN	I	Clock/oscillation input
11	XTAL	XTAL	O	Oscillation output
12	VDDEXT	VDDEXT	–	I/O power supply (EX3.3)
13	/RESET	/DRESET	I	Delayed reset
14	NMI	NMI/DGND	I	(Pull-down)
15	GND	DGND	–	Ground of external
16	RTXO	–	O	
17	RTXI	RTXI/DGND	I	(Pull-down)
18	VDDRTC	–	–	
19	GND	DGND	–	Ground of external
20	VDDEXT	VDDEXT	–	I/O power supply (EX3.3)
21	PPI_CLK	–	I	
22	PP10	–	I/O	
23	PP11	–	I/O	
24	PP12	–	I/O	
25	VDDINT	VDDINT	–	Power supply of microprocessor (BF1.2)
26	PP13	–	I/O	
27	PF15	USB_DREQ1/SDT_DAB	I/O	DMA request from USB (T, G, E models) / I2C data for DAB (B model)
28	PF14	USB_INT/SCK_DAB	I/O	Interrupt from USB (T, G, E models) / I2C clock for DAB (B model)
29	PF13	RDDA	I	RDS data (B, G, E models)
30	GND	DGND	–	Ground of external
31	VDDEXT	VDDEXT	–	I/O power supply (EX3.3)
32	PF12	RDS_RDY	O	RDS ready (B, G, E models)
33	PF11	RDCL	O	RDS clock (B, G, E models)
34	PF10	INTAK	I	CODEC IC (IC301) interrupt
35	PF9	FSYNC/TFS0	I	Frame sync detect
36	PF8	R2A_DATA	I	DATA for R2A volume/selector IC (IC162)
37	PF7	R2A_CLK	O	CLK for R2A volume/selector IC (IC161)
38	PF6	VRB	I	Volume rotary B
39	GND	DGND	–	Ground of external
40	GND	DGND	–	Ground of external
41	GND	DGND	–	Ground of external
42	GND	DGND	–	Ground of external
43	GND	DGND	–	Ground of external
44	GND	DGND	–	Ground of external
45	VDDEXT	VDDEXT	–	I/O power supply (EX3.3)
46	PF5	VRA	I	Volume rotary A
47	PF4	REM	I	IR remote control pulse input
48	PF3	PSW	I	Power switch (STANDBY/ON)
49	PF2	/SPISEL2	O	CS for EEPROM (IC102)
50	PF1	/SPISEL1	O	CS for 4 ch ADC (IC401)
51	PF0	/EXPE	O	Extended port enable
52	VDDINT	VDDINT	–	Power supply of microprocessor (BF1.2)
53	SCK	SPISCK	O	SPI clock
54	MISO	SPIMI	I	Master input/slave output
55	MOSI	SPIMO	O	Master output/slave input
56	GND	DGND	–	Ground of external
57	VDDEXT	VDDEXT	–	I/O power supply (EX3.3)
58	DT1SEC	DT1SEC	O	Serial port 1, secondary transmission data
59	DT1PRI	DT1PRI	O	Serial port 1, primary transmission data
60	TFS1	TFS1	I	Serial port 1, frame asynchronous transmission

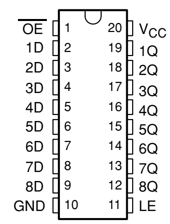
Pin No.	Port Name	Function Name	I/O	Detail of Function
61	TSCLK1	TSCLK1	I	Serial port 1, serial transmission clock
62	DR1SEC	DR1SEC	I	Serial port 1, secondary reception data
63	DR1PRI	DR1PRI	I	Serial port 1, primary reception data
64	RFS1	RFS1	I	Serial port 1, frame synchronization reception
65	RSCLK1	RSCLK1	I	Serial port 1, serial reception clock
66	VDDINT	VDDINT	–	Power supply of microprocessor (BF1.2)
67	DT0SEC	DT0SEC	O	Serial port 0, secondary transmission data
68	DT0PRI	DT0PRI	O	Serial port 0, primary transmission data
69	TFS0	TFS0	I	Serial port 0, frame asynchronous transmission
70	GND	DGND	–	Ground of external
71	VDDEXT	VDDEXT	–	I/O power supply (EX3.3)
72	TSCLK0	TSCLK0	I	Serial port 0, serial transmission clock
73	DR0SEC	DR0SEC	I	Serial port 0, secondary reception data
74	DR0PRI	DR0PRI	I	Serial port 0, primary reception data
75	RFS0	RFS0	I	Serial port 0, frame synchronization reception
76	RSCLK0	RSCLK0	I	Serial port 0, serial reception clock
77	TMR2	–	I/O	
78	TMR1	–	I/O	
79	TMR0	LIMITER	O	Limiter control output
80	VDDINT	VDDINT	–	Power supply of microprocessor (BF1.2)
81	TX	TxDi	O	UART transmission for DOCK (iPod) (B model)
82	RX	RxDi	I	UART reception for DOCK (iPod) (B model)
83	/EMU	–	O	
84	/TRST	–	I	
85	TMS	–	I	
86	TDI	–	I	
87	TDO	–	O	
88	GND	DGND	–	Ground of external
89	GND	DGND	–	Ground of external
90	GND	DGND	–	Ground of external
91	GND	DGND	–	Ground of external
92	GND	DGND	–	Ground of external
93	VDDEXT	VDDEXT	–	I/O power supply (EX3.3)
94	TCK	–	I	
95	BMODE1	BMODE1	I	(Pull-down)
96	BMODE0	BMODE0	I	(Pull-up)
97	GND	DGND	–	Ground of external
98	DATA15	D16	I/O	SDRAM data bus 16
99	DATA14	D15	I/O	SDRAM data bus 15
100	DATA13	D14	I/O	SDRAM data bus 14
101	DATA12	D13	I/O	SDRAM data bus 13
102	DATA11	D12	I/O	SDRAM data bus 12
103	DATA10	D11	I/O	SDRAM data bus 11
104	DATA9	D09	I/O	SDRAM data bus 09
105	DATA8	D08	I/O	SDRAM data bus 08
106	GND	DGND	–	Ground of external
107	VDDEXT	VDDEXT	–	I/O power supply (EX3.3)
108	DATA7	D07	I/O	SDRAM data bus 07
109	DATA6	D06	I/O	SDRAM data bus 06
110	DATA5	D05	I/O	SDRAM data bus 05
111	VDDINT	VDDINT	–	Power supply of microprocessor (BF1.2)
112	DATA4	D04	I/O	SDRAM data bus 04
113	DATA3	D03	I/O	SDRAM data bus 03
114	DATA2	D02	I/O	SDRAM data bus 02
115	DATA1	D01	I/O	SDRAM data bus 01
116	DATA0	D00	I/O	SDRAM data bus 00
117	GND	DGND	–	Ground of external
118	VDDEXT	VDDEXT	–	I/O power supply (EX3.3)
119	/BG	–	O	
120	/BGH	–	O	

Pin No.	Port Name	Function Name	I/O	Detail of Function
121	ADDR19	A19	O	SDRAM address bus 19
122	ADDR18	A18	O	SDRAM address bus 18
123	ADDR17	A17	O	SDRAM address bus 17
124	ADDR16	A16	O	SDRAM address bus 16
125	ADDR15	A15	O	SDRAM address bus 15
126	ADDR14	A14	O	SDRAM address bus 14
127	ADDR13	A13	O	SDRAM address bus 13
128	GND	DGND	–	Ground of external
129	GND	DGND	–	Ground of external
130	GND	DGND	–	Ground of external
131	GND	DGND	–	Ground of external
132	GND	DGND	–	Ground of external
133	GND	DGND	–	Ground of external
134	VDDEXT	VDDEXT	–	I/O power supply (EX3.3)
135	ADDR12	A12	O	SDRAM address bus 12
136	ADDR11	A11	O	SDRAM address bus 11
137	ADDR10	A10	O	SDRAM address bus 10
138	ADDR9	A09	O	SDRAM address bus 09
139	ADDR8	A08	O	SDRAM address bus 08
140	ADDR7	A07	O	SDRAM address bus 07
141	ADDR6	A06	O	SDRAM address bus 06
142	ADDR5	A05	O	SDRAM address bus 05
143	VDDINT	VDDINT	–	Power supply of microprocessor (BF1.2)
144	GND	DGND	–	Ground of external
145	VDDEXT	VDDEXT	–	I/O power supply (EX3.3)
146	ADDR4	A04	O	SDRAM address bus 04
147	ADDR3	A03	O	SDRAM address bus 03
148	ADDR2	A02	O	SDRAM address bus 02
149	ADDR1	A01	O	SDRAM address bus 01
150	/ABE1	SDQM1	O	SDRAM byte enable/data mask 1
151	/ABE0	SDQM0	O	SDRAM byte enable/data mask 0
152	/AWE	/AWE	O	Write enable (Asynchronous)
153	/ARE	/ARE	O	Read enable
154	/AOE	/AOE	O	Output enable
155	GND	DGND	–	Ground of external
156	VDDEXT	VDDEXT	–	I/O power supply (EX3.3)
157	VDDINT	VDDINT	–	Power supply of microprocessor (BF1.2)
158	/AMS3	/AMS3	O	Bank select 3
159	/AMS2	/AMS2	O	Bank select 2
160	/AMS1	/AMS1	O	Bank select 1
161	/AMS0	/AMS0	O	Bank select 0
162	ARDY	ARDY	I	Hardware ready control
163	/BR	/BR	I	(Pull-up)
164	SA10	SA10	O	A10 pin
165	/SWE	/SWE	O	Write enable (Synchronization)
166	/SCAS	/SCAS	O	Sequence address strobe
167	/SRAS	/SRAS	O	Line address strobe
168	VDDINT	VDDINT	–	Power supply of microprocessor (BF1.2)
169	CLKOUT	CLKOUT	O	Clock output
170	GND	DGND	–	Ground of external
171	VDDEXT	VDDEXT	–	I/O power supply (EX3.3)
172	/SMS	/SMS	O	Bank select
173	SCKE	SCKE	O	Clock enable
174	GND	DGND	–	Ground of external
175	GND	DGND	–	Ground of external
176	GND	DGND	–	Ground of external

- **Microprocessor extended port**

IC204-IC207: SN74LV573APWR (DSP P.C.B.)
Octal 3-state D-latches with 3-state outputs





IC204

Pin No.	Port Name	Function Name	Detail of Function
1	/OE	/EXPE	Extended port enable
2	1D	D00	Data bus 00
3	2D	D01	Data bus 01
4	3D	D02	Data bus 02
5	4D	D03	Data bus 03
6	5D	D04	Data bus 04
7	6D	D05	Data bus 05
8	7D	D06	Data bus 06
9	8D	D07	Data bus 07
10	GND	DGND	Ground of external
11	LE	LEEX1	Bank select 1
12	8Q	/SPISEL3	CS for CODEC IC (IC301, DSP P.C.B.)
13	7Q	ADSEL2	4ch ADC input select 2
14	6Q	ADSEL1	4ch ADC input select 1
15	5Q	ADSEL0	4ch ADC input select 0
16	4Q	/CCBE	SPI bus switch
17	3Q	/CMT	Center mute
18	2Q	/SMT	Surround mute
19	1Q	/FMT	Front mute
20	VCC	EX3.3	Power supply

IC205

Pin No.	Port Name	Function Name	Detail of Function
1	/OE	/EXPE	Extended port enable
2	1D	D08	Data bus 08
3	2D	D09	Data bus 09
4	3D	D10	Data bus 10
5	4D	D11	Data bus 11
6	5D	D12	Data bus 12
7	6D	D13	Data bus 13
8	7D	D14	Data bus 14
9	8D	D15	Data bus 15
10	GND	DGND	Ground of external
11	LE	LEEX1	Bank select 1
12	8Q	Ex1-15/RDS_RST	RDS reset (B, G, E models)
13	7Q	SSEL3	SCENE select LED switch 3
14	6Q	SSEL2	SCENE select LED switch 2
15	5Q	SSEL1	SCENE select LED switch 1
16	4Q	/IC_AK	IC for CODEC IC (IC301, DSP P.C.B.), VFD (IC201, OPERATION P.C.B.) and USB (IC601, DSP P.C.B.) (T, G, E models)
17	3Q	/SPISEL4	CS for VFD (IC201, OPERATION P.C.B.)
18	2Q	/3.3SW	+3.3S switch
19	1Q	PRY	Power relay
20	VCC	EX3.3	Power supply

IC206

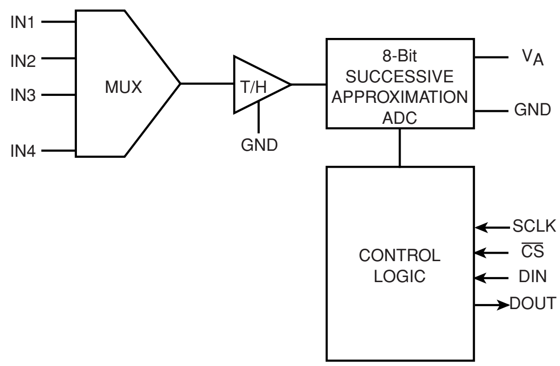
Pin No.	Port Name	Function Name	Detail of Function
1	/OE	/EXPE	Extended port enable
2	1D	D00	Data bus 00
3	2D	D01	Data bus 01
4	3D	D02	Data bus 02
5	4D	D03	Data bus 03
6	5D	D04	Data bus 04
7	6D	D05	Data bus 05
8	7D	D06	Data bus 06
9	8D	D07	Data bus 07
10	GND	DGND	Ground of external
11	LE	LEEX2	Bank select 2
12	8Q	/VR1	Video select R
13	7Q	SPISEL5	CE for tuner
14	6Q	/8ohmSW	AC H/L relay (RY106, MAIN P.C.B.)
15	5Q	HPRY	Headphone relay (RY102, MAIN P.C.B.)
16	4Q	MRYA	Main speakers A relay (RY101, MAIN P.C.B.)
17	3Q	MRYB	Main speakers B relay (RY102, MAIN P.C.B.)
18	2Q	CSRY	Center/surround speakers relay (RY103/RY105, MAIN P.C.B.)
19	1Q	/SWMT	Subwoofer mute
20	VCC	EX3.3	Power supply

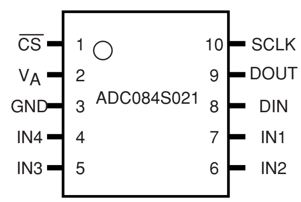
IC207

Pin No.	Port Name	Function Name	Detail of Function
1	/OE	/EXPE	Extended port enable
2	1D	D08	Data bus 08
3	2D	D09	Data bus 09
4	3D	D10	Data bus 10
5	4D	D11	Data bus 11
6	5D	D12	Data bus 12
7	6D	D13	Data bus 13
8	7D	D14	Data bus 14
9	8D	D15	Data bus 15
10	GND	DGND	Ground of external
11	LE	LEEX2	Bank select 2
12	8Q	DST	Direct stereo
13	7Q	/OSDSEL	OSD/Video select
14	6Q	MON	Monitor mute
15	5Q	/SPISEL6	CS for OSD (IC342, VIDEO P.C.B.)
16	4Q	VIC	Video select C
17	3Q	Ex2-10/USB_N_DACK1	DMA ACK for USB (IC601, DSP P.C.B.) (T, G, E models)
18	2Q	Ex2-09/VIB	Video select B
19	1Q	Ex2-08/VIA	Video select A
20	VCC	EX3.3	Power supply

• Microprocessor ADC select port

IC401: ADC084S021CIMM (DSP P.C.B.)
4-channel, 200 kSPS, 8-bit A/D converter



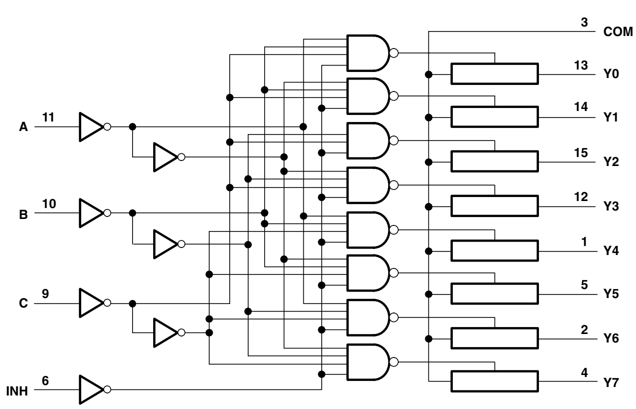


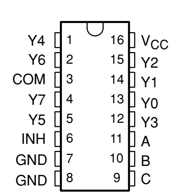
Pin No.	Port Name	Function Name	Detail of Function
1	/CS	/SPISEL1	CS for microprocessor
2	VA	VA	+3.3S
3	GND	DGND	Ground of external
4	IN4	IN4	Analog value from selector (IC402)
5	IN3	IN3	Analog value from selector (IC403)
6	IN2	KEY1	Key input 1
7	IN1	KEY0	Key input 0
8	DIN	SPIMO	Master output/slave input
9	DOUT	SPIMI	Master input/slave output
10	SCLK	SPISCK	SPI clock

Key input (A/D), pull-up resistance 10 k-ohms

Ohm [ohm]	+1.0 k	+1.0 k	+1.5 k	+2.2 k	+3.3 k	+4.7 k	+4.7 k	+6.8 k	+10.0 k	+22.0 k
V [V]	0.3	0.55	0.86	1.2	1.56	1.91	2.14	2.36	2.57	2.81
KEY0 (7 pin)	SCENE 1	SCENE 2	PROGRAM <	PROGRAM >	STRAIGHT	TONE CONTROL	SEARCH MODE	FM/AM	A/B/C/D/E	SPEAKERS
KEY1 (6 pin)	SCENE 3	SCENE 4	DIRECT	AUDIO SELECT	INPUT <	INPUT >	PRESET/ TUNING <	PRESET/ TUNING >	MEMORY	TUNING

IC402, IC403: SN74LV4051APWR (DSP P.C.B.)
8-channel analog multiplexers/demultiplexers





INPUTS				ON CHANNEL
INH	C	B	A	
L	L	L	L	Y0
L	L	L	H	Y1
L	L	H	L	Y2
L	L	H	H	Y3
L	H	L	L	Y4
L	H	L	H	Y5
L	H	H	L	Y6
L	H	H	H	Y7
H	X	X	X	None

IC402

Pin No.	Port Name	Function Name	Detail of Function
1	Y4	iPAP	DOCK (iPod) detect (ACCPOW) (B model)
2	Y6	DEST2	Destination 2 *
3	COM	COM	Analog value to IN4 (IC401)
4	Y7	LINKACTIVE	
5	Y5	XM_MUTE	
6	INH	DGND	(Pull-down)
7	GND	DGND	Ground of external
8	GND	DGND	Ground of external
9	C	ADSEL2	Input select 2
10	B	ADSEL1	Input select 1
11	A	ADSEL0	Input select 0
12	Y3	iPDET	DOCK (iPod) detect (iPDET) (B model)
13	Y0	/MIC	MIC detect
14	Y1	/ST	Stereo for tuner
15	Y2	/TUNED	Tuned for tuner
16	Vcc	+3.3S	Power supply

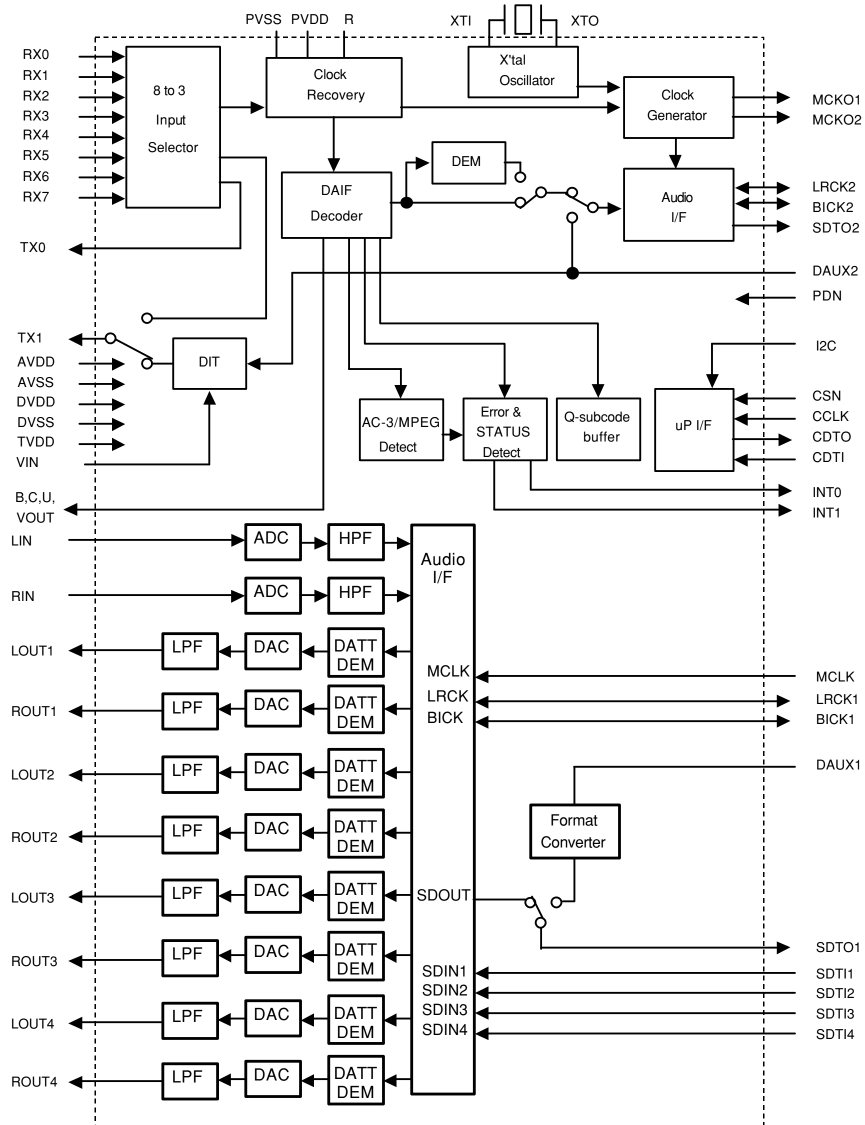
* Destination for A/D port

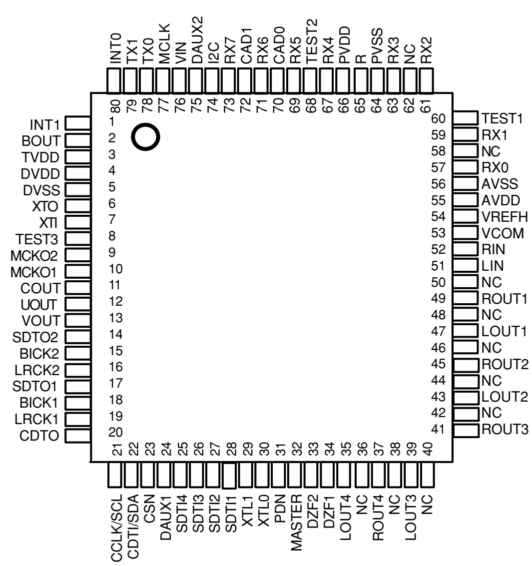
R416 [ohm]	6.8 k	8.2 k	8.2 k
R410 [ohm]	5.6 k	2.2 k	1.0 k
DEST (1 pin) [V]	1.3-1.7	0.5-0.9	0.2-0.5
A/D value (3.3 V=255)	100-132	42-69	16-41
Destination	T	B	G, E

IC403

Pin No.	Port Name	Function Name	Detail of Function
1	Y4	DEST	Destination 1 (fixed)
2	Y6	/PDET	Sub-trans detect
3	COM	COM	Analog value to IN3 (IC401)
4	Y7	/HP	Headphone detect
5	Y5	PRIIN	Current protection
6	INH	DGND	(Pull-down)
7	GND	DGND	Ground of external
8	GND	DGND	Ground of external
9	C	ADSEL2	Input select 2
10	B	ADSEL1	Input select 1
11	A	ADSEL0	Input select 0
12	Y3	PLDET	Limiter detect
13	Y0	PRDIN	Amplifier DC detect
14	Y1	PRVIN	Voltage protection
15	Y2	THMIN	Thermo protection
16	Vcc	+3.3S	Power supply

IC301: AK4588VQ (DSP P.C.B.)
2/8-channel audio CODEC with DIR



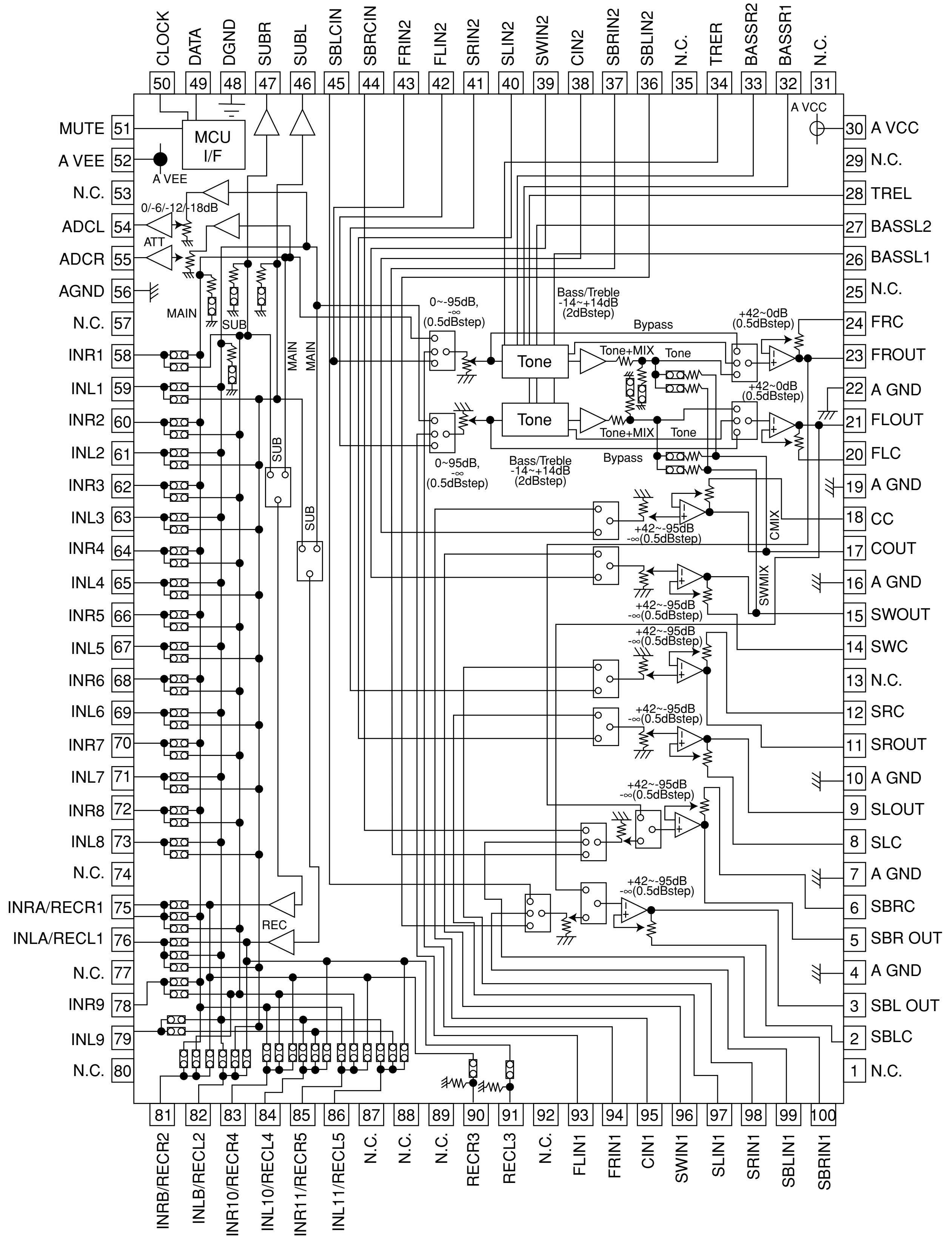


Pin No.	Function Name	I/O	Detail of Function
1	INT1	O	Interrupt 1 pin
2	BOUT	O	Block-start output pin for receiver input "H" during first 40 flames
3	TVDD	–	Output buffer power supply pin, 2.7 V to 5.5 V
4	DVDD	–	Digital power supply pin, 4.5 V to 5.5 V
5	DVSS	–	Digital ground pin
6	XTO	O	X'tal clock output pin
7	XTI	I	X'tal / External clock input pin
8	TEST3	I	Test 3 pin This pin should be connected to DVSS
9	MCKO2	O	Master clock output 2 pin
10	MCKO1	O	Master clock output 1 pin
11	COUT	O	C-bit output pin for receiver input
12	UOUT	O	U-bit output pin for receiver input
13	VOUT	O	V-bit output pin for receiver input
14	SDTO2	O	Audio serial data output pin (DIR/DIT part)
15	BICK2	I/O	Audio serial data clock pin (DIR/DIT part)
16	LRCK2	I/O	Channel clock pin (DIR/DIT part)
17	SDTO1	O	Audio serial data output pin (ADC/DAC part)
18	BICK1	I/O	Audio serial data clock pin (ADC/DAC part)
19	LRCK1	I/O	Input channel clock pin
20	CDTO	O	Control data output pin in serial mode, I2C pin= "L"
21	CCLK	I	Control data clock pin in serial mode, I2C pin= "L"
	SCL	I	Control data clock pin in serial mode, I2C pin= "H"
22	CDTI	I	Control data input pin in serial mode, I2C pin= "L"
	SDA	I/O	Control data pin in serial mode, I2C pin= "H"
23	CSN	I	Chip select pin in serial mode, I2C pin="L"
		I	This pin should be connected to DVSS, I2C pin="H"
24	DAUX1	I	AUX audio serial data input pin (ADC/DAC part)
25	SDTI4	I	DAC4 audio serial data input pin
26	SDTI3	I	DAC3 audio serial data input pin
27	SDTI2	I	DAC2 audio serial data input pin
28	SDTI1	I	DAC1 audio serial data input pin
29	XTL1	I	X'tal frequency select 0 pin
30	XTL0	I	X'tal frequency select 1 pin
31	PDN	I	Power-down mode pin When "L", the AK4588 is powered-down, all output pin goes "L", all registers are reset When CAD1-0 pins are changed, the AK4588 should be reset by PDN pin
32	MASTER	I	Master mode select pin "H": Master mode, "L": Slave mode
33	DZF2	O	Zero input detect 2 pin (table 13) When the input data of the group 1 follow total 8192 LRCK cycles with "0" input data, this pin goes to "H" / When RSTN1 bit is "0" or PWDAN bit is "0", this pin goes to "H"
	OVF	O	Analog input overflow detect pin This pin goes to "H" if the analog input of L ch or R ch overflows This pin becomes OVF pin if OVFE bit is set to 1
34	DZF1	O	Zero input detect 1 pin (table 13) When the input data of the group 1 follow total 8192 LRCK cycles with "0" input data, this pin goes to "H" / When RSTN1 bit is "0" or PWDAN bit is "0", this pin goes to "H"
35	LOUT4	O	DAC4 L ch analog output pin
36	NC	–	No connect pin No internal bonding / This pin should be opened
37	ROUT4	O	DAC4 R ch analog output pin
38	NC	–	No connect pin No internal bonding / This pin should be opened
39	LOUT3	O	DAC3 L ch analog output pin
40	NC	–	No connect pin No internal bonding / This pin should be opened

Pin No.	Function Name	I/O	Detail of Function
41	ROUT3	O	DAC3 R ch analog output pin
42	NC	–	No connect pin No internal bonding / This pin should be opened
43	LOUT2	O	DAC2 L ch analog output pin
44	NC	–	No connect pin No internal bonding / This pin should be opened
45	ROUT2	O	DAC2 R ch analog output pin
46	NC	–	No connect pin No internal bonding / This pin should be opened
47	LOUT1	O	DAC1 L ch analog output pin
48	NC	–	No connect pin No internal bonding / This pin should be opened
49	ROUT1	O	DAC1 R ch analog output pin
50	NC	–	No connect pin No internal bonding / This pin should be opened
51	LIN	I	L ch analog input pin
52	RIN	I	R ch analog input pin
53	VCOM	–	Common voltage output pin 2.2 F capacitor should be connected to AVSS externally
54	VREFH	–	Positive voltage reference input pin, AVDD
55	AVDD	–	Analog power supply pin, 4.5 V to 4.5 V
56	AVSS	–	Analog ground pin, 0 V
57	RX0	I	Receiver channel 0 pin (Internal biased pin / Internally biased at PVDD/2)
58	NC	–	No connect pin No internal bonding / This pin should be connected to PVSS
59	RX1	I	Receiver channel 1 pin (Internal biased pin / Internally biased at PVDD/2)
60	TEST1	I	Test 1 pin This pin should be connected to PVSS
61	RX2	I	Receiver channel 2 pin (Internal biased pin / Internally biased at PVDD/2)
62	NC	–	No connect pin No internal bonding / This pin should be connected to PVSS
63	RX3	I	Receiver channel 3 pin (Internal biased pin / Internally biased at PVDD/2)
64	PVSS	–	PLL ground pin
65	R	–	External resistor pin 12 k-ohms +/-1 % resistor should be connected to PVSS externally
66	PVDD	–	PLL power supply pin, 4.5 V to 4.5 V
67	RX4	I	Receiver channel 4 pin (Internal biased pin / Internally biased at PVDD/2)
68	TEST2	I	Test 2 pin This pin should be connected to PVSS
69	RX5	I	Receiver channel 5 pin (Internal biased pin / Internally biased at PVDD/2)
70	CAD0	I	Chip address 0 pin (ADC/DAC part)
71	RX6	I	Receiver channel 6 pin (Internal biased pin / Internally biased at PVDD/2)
72	CAD1	I	Chip address 1 pin (ADC/DAC part)
73	RX7	I	Receiver channel 7 pin (Internal biased pin / Internally biased at PVDD/2)
74	I2C	I	Control mode select pin “L”: 4-wire serial, “H”: I2C bus
75	DAUX2	I	Auxiliary audio data input pin (DIR/DIT part)
76	VIN	I	V-bit input pin for transmitter output
77	MCLK	I	Master clock input pin
78	TX0	O	Transmit channel (through data) output 0 pin
79	TX1	O	Transmit channel output 1 pin When TX bit = “0”, transmit channel (through data) output 1 pin. When TX bit = “1”, transmit channel (DAUX2 data) output pin (default)
80	INT0	O	Interrupt 0 pin

Note: All input pins except internal biased pins and internal pull-down pin should not be left floating.

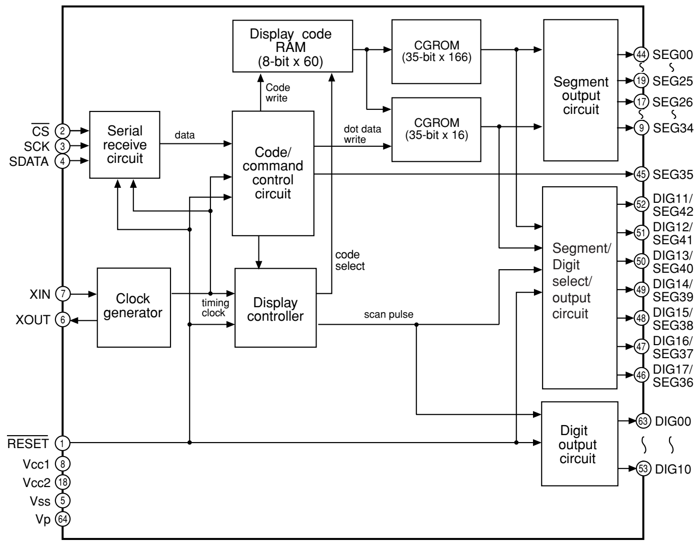
IC161: R2A15215FP (MAIN P.C.B.)
8-channel electronic volume with 11 input selector and tone control

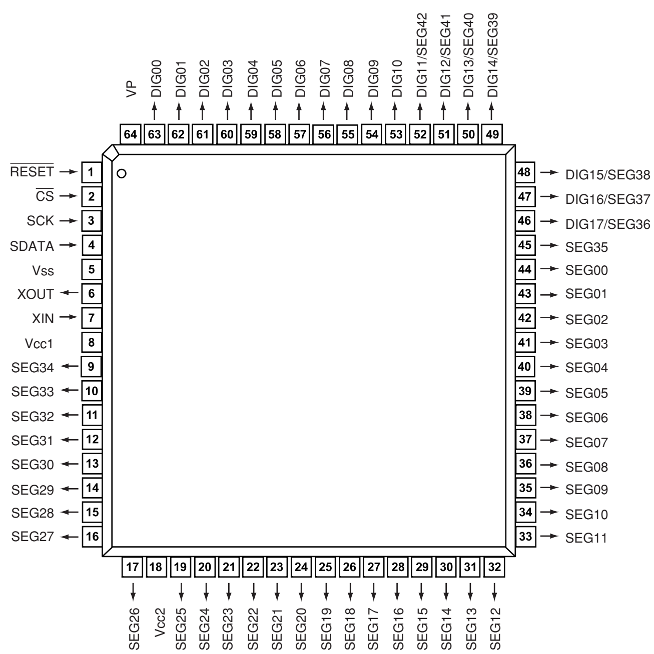


Pin No.	Function Name	Detail of Function
1	N.C.	No connected
2	SBLC	L/R/C/SW/SL/SR/SBL/SBR ch terminal to connect capacitor to reduce noise from changing the volume
3	SBLOUT	FL/FR/C/SW/SL/SR/SBL/SBR ch output terminal
4	AGND	Analog GND terminal
5	SBROUT	FL/FR/C/SW/SL/SR/SBL/SBR ch output terminal
6	SBRC	L/R/C/SW/SL/SR/SBL/SBR ch terminal to connect capacitor to reduce noise from changing the volume
7	AGND	Analog GND terminal
8	SLC	L/R/C/SW/SL/SR/SBL/SBR ch terminal to connect capacitor to reduce noise from changing the volume
9	SLOUT	FL/FR/C/SW/SL/SR/SBL/SBR ch output terminal
10	AGND	Analog GND terminal
11	SROUT	FL/FR/C/SW/SL/SR/SBL/SBR ch output terminal
12	SRC	L/R/C/SW/SL/SR/SBL/SBR ch terminal to connect capacitor to reduce noise from changing the volume
13	N.C.	No connected
14	SWC	L/R/C/SW/SL/SR/SBL/SBR ch terminal to connect capacitor to reduce noise from changing the volume
15	SWOUT	FL/FR/C/SW/SL/SR/SBL/SBR ch output terminal
16	AGND	Analog GND terminal
17	COUT	FL/FR/C/SW/SL/SR/SBL/SBR ch output terminal
18	CC	L/R/C/SW/SL/SR/SBL/SBR ch terminal to connect capacitor to reduce noise from changing the volume
19	AGND	Analog GND terminal
20	FLC	L/R/C/SW/SL/SR/SBL/SBR ch terminal to connect capacitor to reduce noise from changing the volume
21	FLOUT	FL/FR/C/SW/SL/SR/SBL/SBR ch output terminal
22	AGND	Analog GND terminal
23	FROUT	FL/FR/C/SW/SL/SR/SBL/SBR ch output terminal
24	FRC	L/R/C/SW/SL/SR/SBL/SBR ch terminal to connect capacitor to reduce noise from changing the volume
25	N.C.	No connected
26	BASSL1	L/R ch tone control (Bass) terminal for setting frequency characteristics
27	BASSL2	L/R ch tone control (Bass) terminal for setting frequency characteristics
28	TREL	L/R ch tone control (Treble) terminal for setting frequency characteristics
29	N.C.	No connected
30	AVCC	Positive side power terminal
31	N.C.	No connected
32	BASSR1	L/R ch tone control (Bass) terminal for setting frequency characteristics
33	BASSR2	L/R ch tone control (Bass) terminal for setting frequency characteristics
34	TRER	L/R ch tone control (Treble) terminal for setting frequency characteristics
35	N.C.	No connected
36	SBLIN2	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
37	SBRIN2	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
38	CIN2	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
39	SWIN2	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
40	SLIN2	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
41	SRIN2	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
42	FLIN2	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
43	FRIN2	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
44	SBRCIN	SBL/SBR ch volume input terminal
45	SBLCIN	SBL/SBR ch volume input terminal
46	SUBL	L/R ch SUB output terminal
47	SUBR	L/R ch SUB output terminal
48	DGND	Digital GND terminal
49	DATA	Control data input terminal
50	CLOCK	Control data input terminal
51	MUTE	External mute control terminal
52	AVEE	Negative side power terminal
53	N.C.	No connected
54	ADCL	L/R ch ADC output terminal
55	ADCR	L/R ch ADC output terminal

Pin No.	Function Name	Detail of Function
56	AGND	Analog GND terminal
57	N.C.	No connected
58	INR1	L/R ch input terminal (input selector)
59	INL1	L/R ch input terminal (input selector)
60	INR2	L/R ch input terminal (input selector)
61	INL2	L/R ch input terminal (input selector)
62	INR3	L/R ch input terminal (input selector)
63	INL3	L/R ch input terminal (input selector)
64	INR4	L/R ch input terminal (input selector)
65	INL4	L/R ch input terminal (input selector)
66	INR5	L/R ch input terminal (input selector)
67	INL5	L/R ch input terminal (input selector)
68	INR6	L/R ch input terminal (input selector)
69	INL6	L/R ch input terminal (input selector)
70	INR7	L/R ch input terminal (input selector)
71	INL7	L/R ch input terminal (input selector)
72	INR8	L/R ch input terminal (input selector)
73	INL8	L/R ch input terminal (input selector)
74	N.C.	No connected
75	INRA/RECR1	L/R ch input terminal (input selector) / L/R ch REC output terminal
76	INLA/RECL1	L/R ch input terminal (input selector) / L/R ch REC output terminal
77	N.C.	No connected
78	INR9	L/R ch input terminal (input selector)
79	INL9	L/R ch input terminal (input selector)
80	N.C.	No connected
81	INRB/RECR2	L/R ch input terminal (input selector) / L/R ch REC output terminal
82	INLB/RECL2	L/R ch input terminal (input selector) / L/R ch REC output terminal
83	INR10/RECR4	L/R ch input terminal (input selector) / L/R ch REC output terminal
84	INL10/RECL4	L/R ch input terminal (input selector) / L/R ch REC output terminal
85	INR11/RECR5	L/R ch input terminal (input selector) / L/R ch REC output terminal
86	INL11/RECL5	L/R ch input terminal (input selector) / L/R ch REC output terminal
87	N.C.	No connected
88	N.C.	No connected
89	N.C.	No connected
90	RECR3	L/R ch REC output terminal
91	RECL3	L/R ch REC output terminal
92	N.C.	No connected
93	FLIN1	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
94	FRIN1	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
95	CIN1	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
96	SWIN1	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
97	SLIN1	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
98	SRIN1	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
99	SBLIN1	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
100	SBRIN1	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)

IC201: M66003-0131FP-R (OPERATION P.C.B.)
18 digit 5x7 segment VFD controller/driver



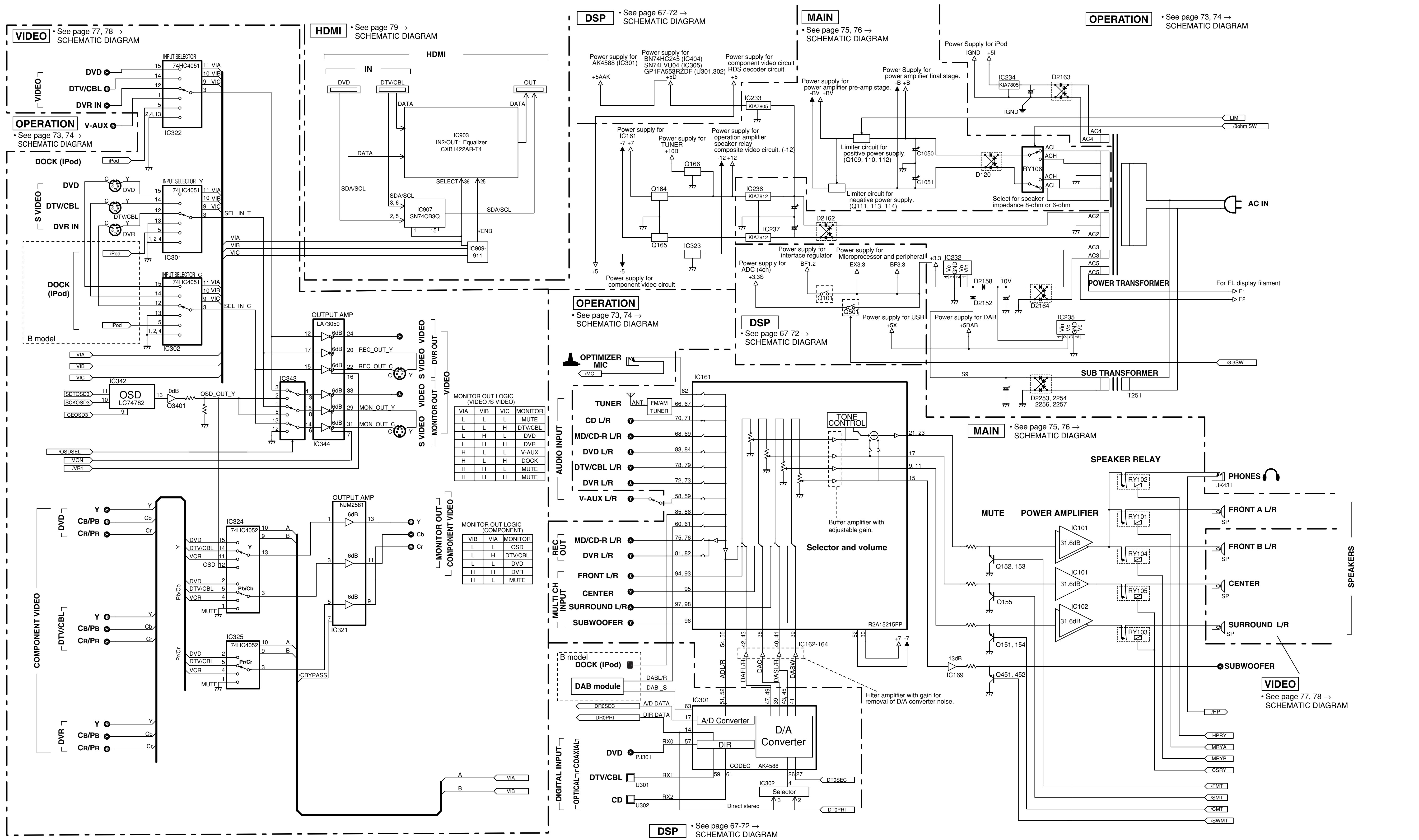


Pin No.	Port Name	Function Name	I/O	Detail of Function
1	/RESET	$\overline{Reset}$	Reset input	When "L", M66003 is initialized
2	/CEFL	$\overline{CS}$	Chip select input	When "L", communication with the MCU is possible When "H", any instruction from the MCU is neglected
3	CKFL	SCK	Shift clock input	Serial input data is taken and shifted by the positive edge of SCK
4	DTFL	SDATA	Serial data input	
5	VSS	Vss		GND (0V)
6	XOUT	XOUT	Clock output	When use as a CR oscillator, connect external resistor and capacitor / When use an external clock, input external clock to XIN, and XOUT must be opened
7	XIN	XIN	Clock input	
8	VDD	Vcc1		Positive power supply for internal logic
9	P1I	SEG34	Segment output	Positive power supply for DIG and SEG outputs
10	P2	SEG33	Segment output	
11	P3	SEG32	Segment output	
12	P4	SEG31	Segment output	
13	P5	SEG30	Segment output	
14	P6	SEG29	Segment output	
15	P7	SEG28	Segment output	
16	P8	SEG27	Segment output	
17	P9	SEG26	Segment output	
18	VDD	Vcc2		
19	P10	SEG25	Segment output	Connect to segment (anode) pins of VFD
20	P11	SEG24	Segment output	
21	P12	SEG23	Segment output	
22	P13	SEG22	Segment output	
23	P14	SEG21	Segment output	
24	P15	SEG20	Segment output	
25	P16	SEG19	Segment output	
26	P17	SEG18	Segment output	
27	P18I	SEG17	Segment output	
28	P19	SEG16	Segment output	
29	P20	SEG15	Segment output	
30	P21	SEG14	Segment output	
31	P22	SEG13	Segment output	
32	P23	SEG12	Segment output	
33	P24	SEG11	Segment output	
34	P25	SEG10	Segment output	
35	P26	SEG09	Segment output	
36	P27	SEG08	Segment output	
37	P28	SEG07	Segment output	
38	P29	SEG06	Segment output	
39	P30	SEG05	Segment output	
40	P31	SEG04	Segment output	
41	P32	SEG03	Segment output	
42	P33	SEG02	Segment output	
43	P34	SEG01	Segment output	
44	P35	SEG00	Segment output	
45	P36	SEG35	Segment output	
46	P37	DIG17/SEG36	Segment output	
47	G17I	DIG16/SEG37	Digit output	Connect to digit (grid) pins of VFD
48	G16I	DIG15/SEG38	Digit output	
49	G15I	DIG14/SEG39	Digit output	
50	G14	DIG13/SEG40	Digit output	
51	G13	DIG12/SEG41	Digit output	
52	G12	DIG11/SEG42	Digit output	
53	G11	DIG10	Digit output	
54	G10	DIG09	Digit output	
55	G9	DIG08	Digit output	
56	G8	DIG07	Digit output	
57	G7	DIG06	Digit output	
58	G6	DIG05	Digit output	
59	G5	DIG04	Digit output	
60	G4	DIG03	Digit output	
61	G3	DIG02	Digit output	
62	G2	DIG01	Digit output	
63	G1	DIG00	Digit output	
64	VP	Vp		Negative power supply to pull down

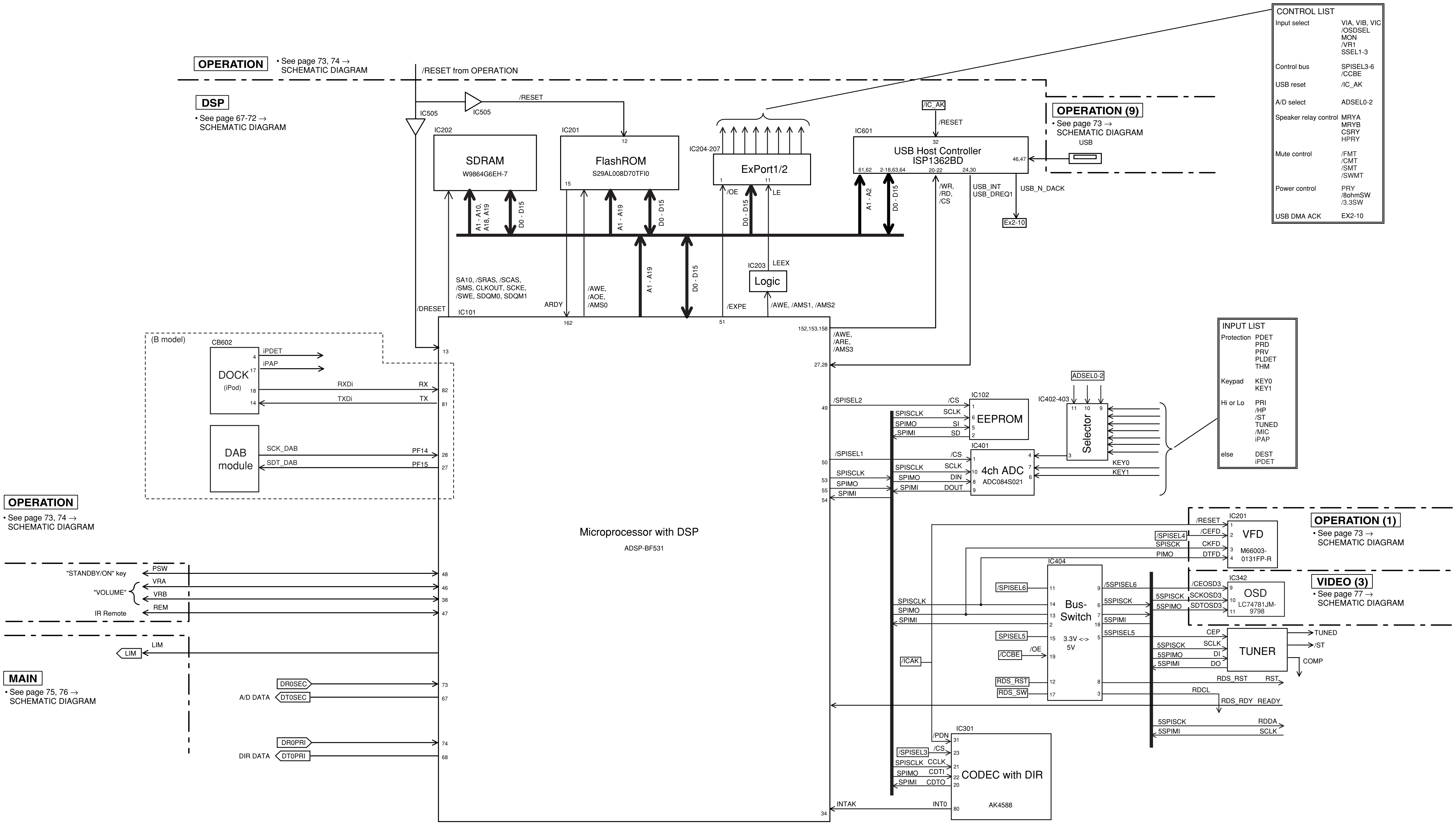
MEMO

■ BLOCK DIAGRAMS

Video, Audio and Power Supply Sections

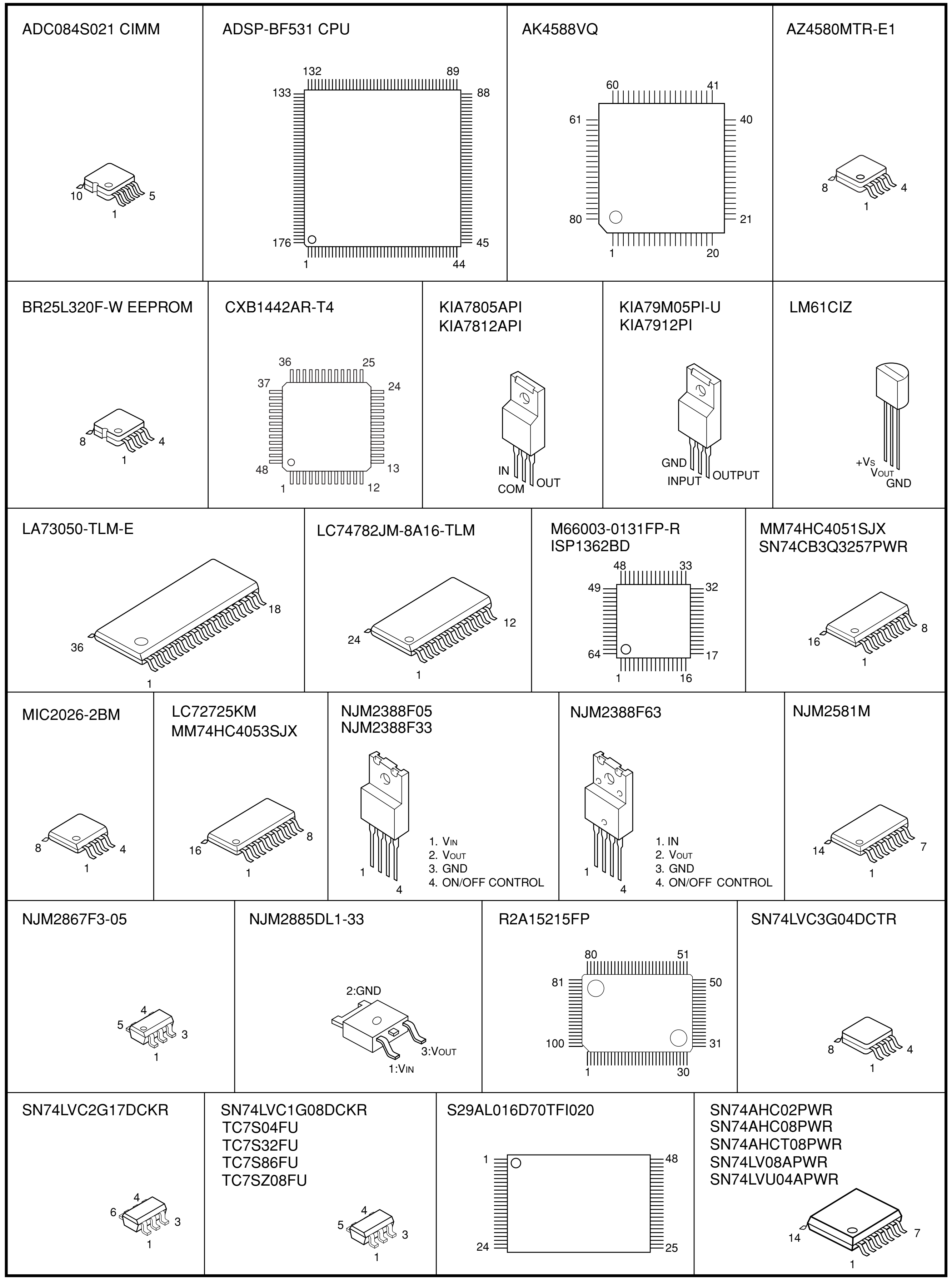


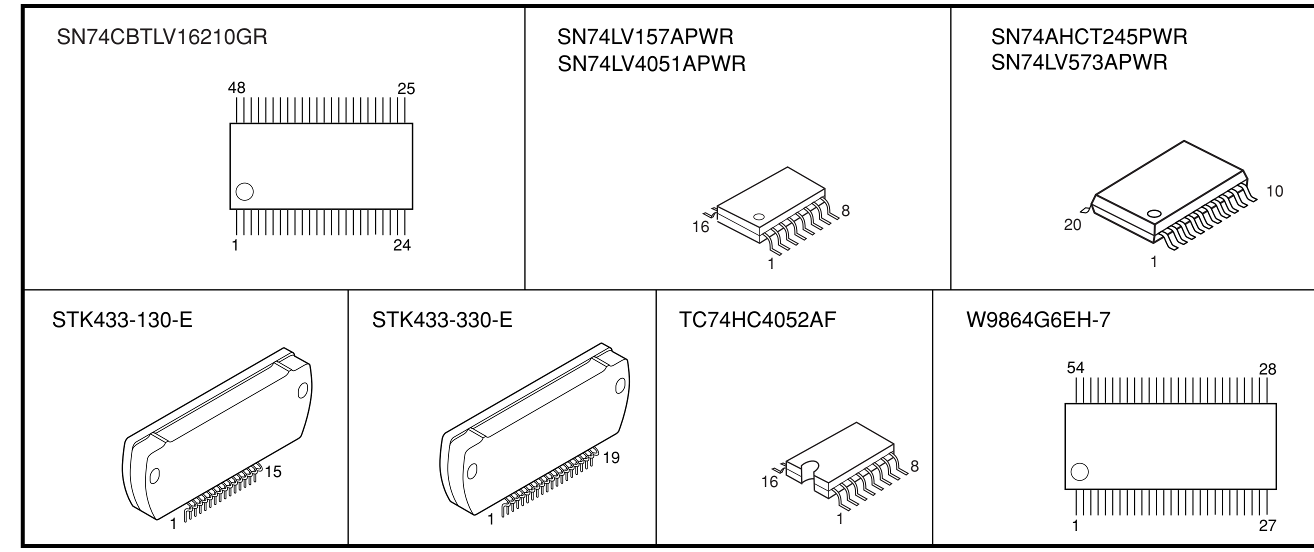
Control Section



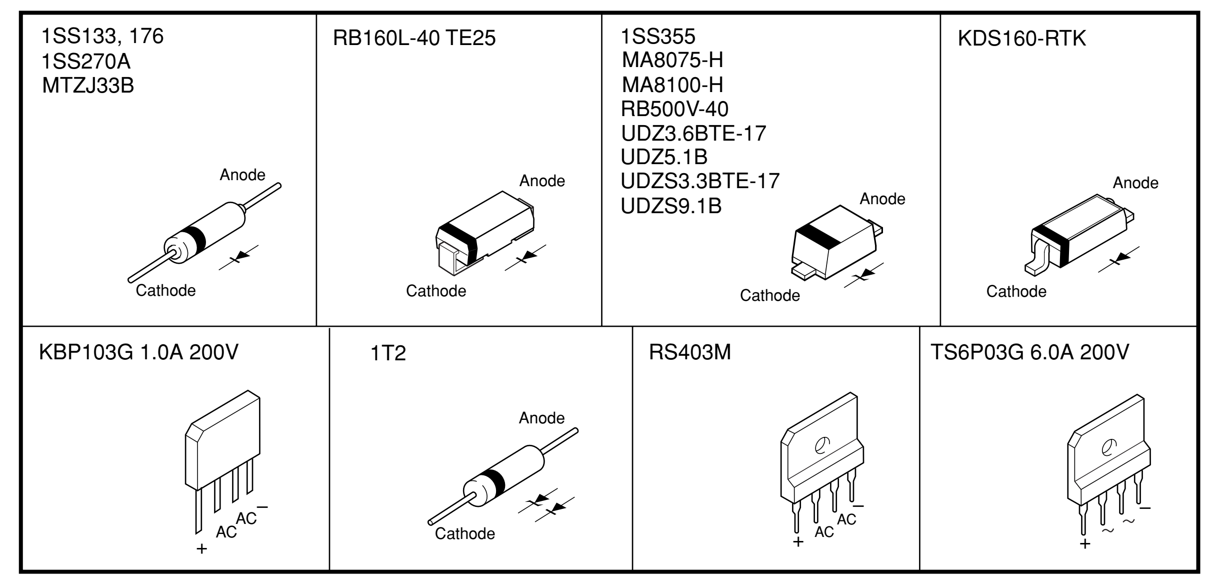
■ PIN CONNECTION DIAGRAMS

• ICs

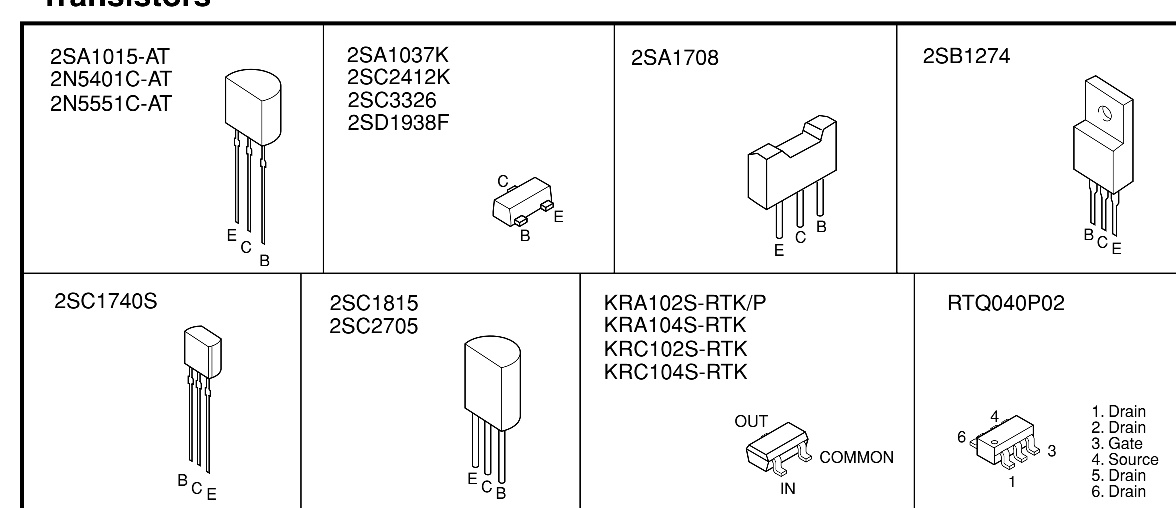




• Diodes



• Transistors

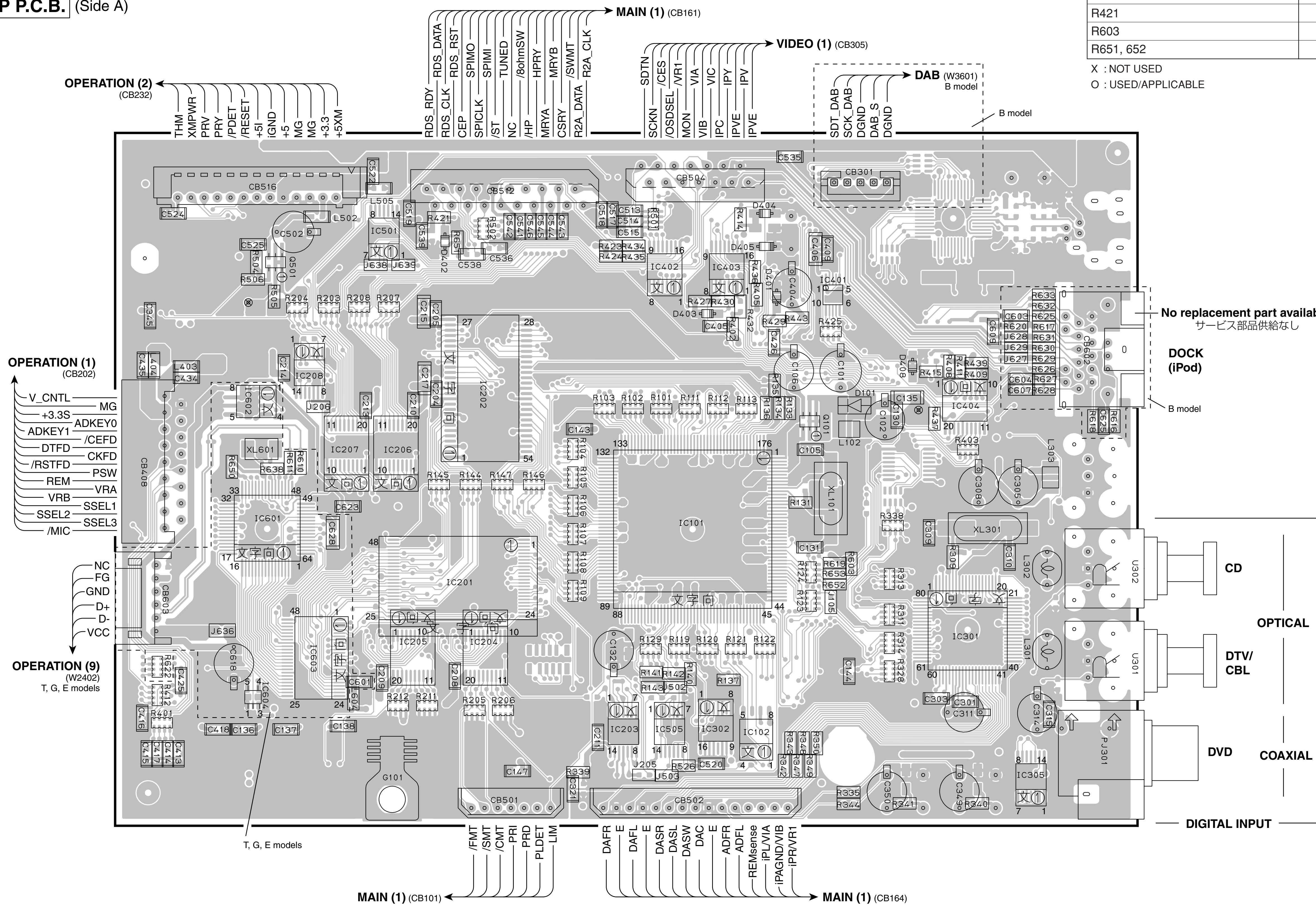


■ PRINTED CIRCUIT BOARDS

Circuit No.	T	B, G, E
D402	X	O
R409	X	O
R421	X	O
R603	X	O
R651, 652	X	O

X : NOT USED
O : USED/APPLICABLE

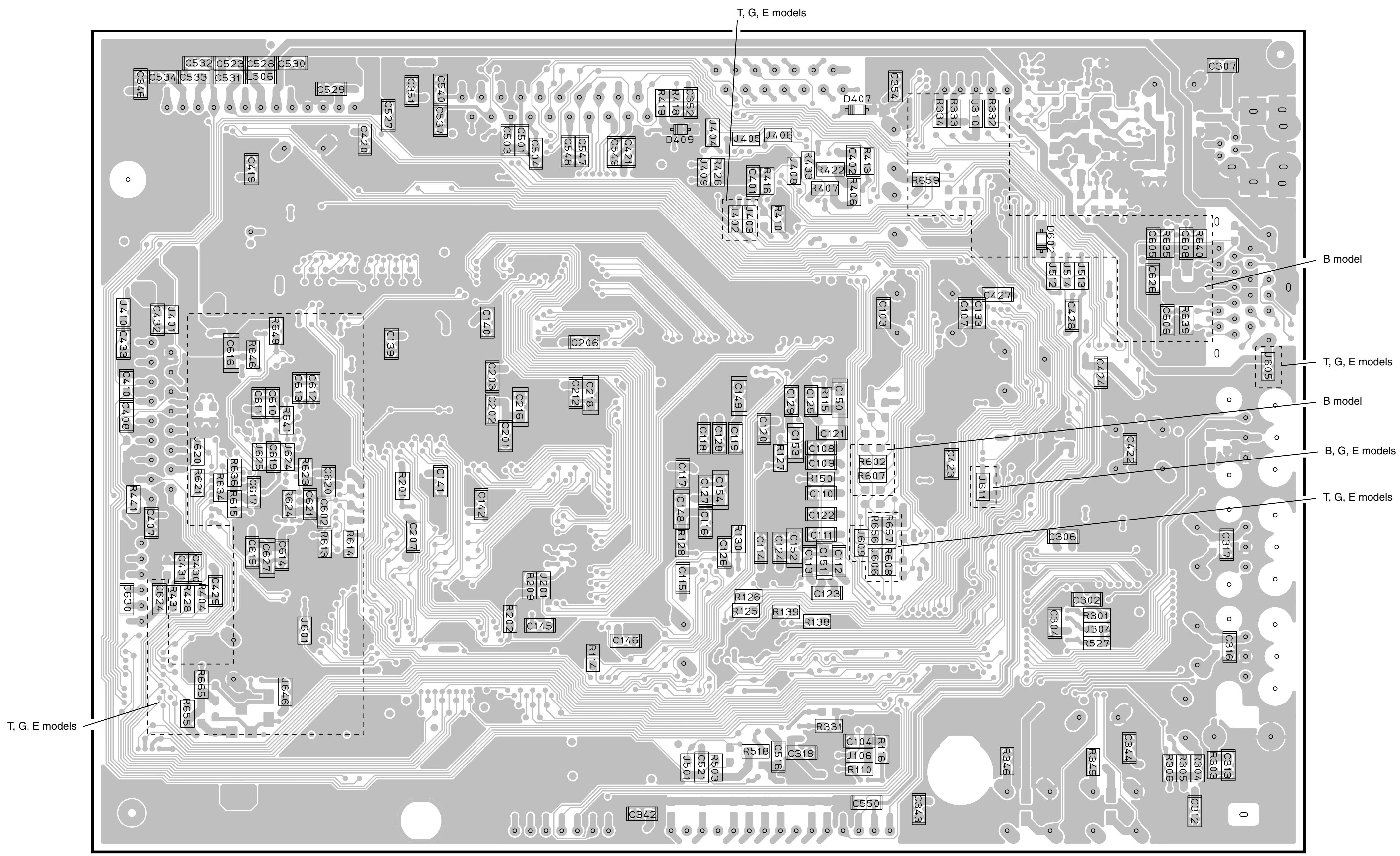
DSP P.C.B. (Side A)



• **Semiconductor Location**

Ref no.	Location	Ref no.	Location
D101	G4	IC208	C4
D401	F3	IC301	G5
D402	D3	IC302	F6
D403	F3	IC305	H6
D404	F3	IC401	F3
D405	F3	IC402	E3
D408	G4	IC403	F3
IC101	F5	IC404	G4
IC102	F6	IC501	D3
IC201	D5	IC505	E6
IC202	D4	IC601	C5
IC203	E6	IC602	C5
IC204	D5	IC603	C5
IC205	D5	IC604	C6
IC206	D4	Q101	F4
IC207	D4	Q501	C3

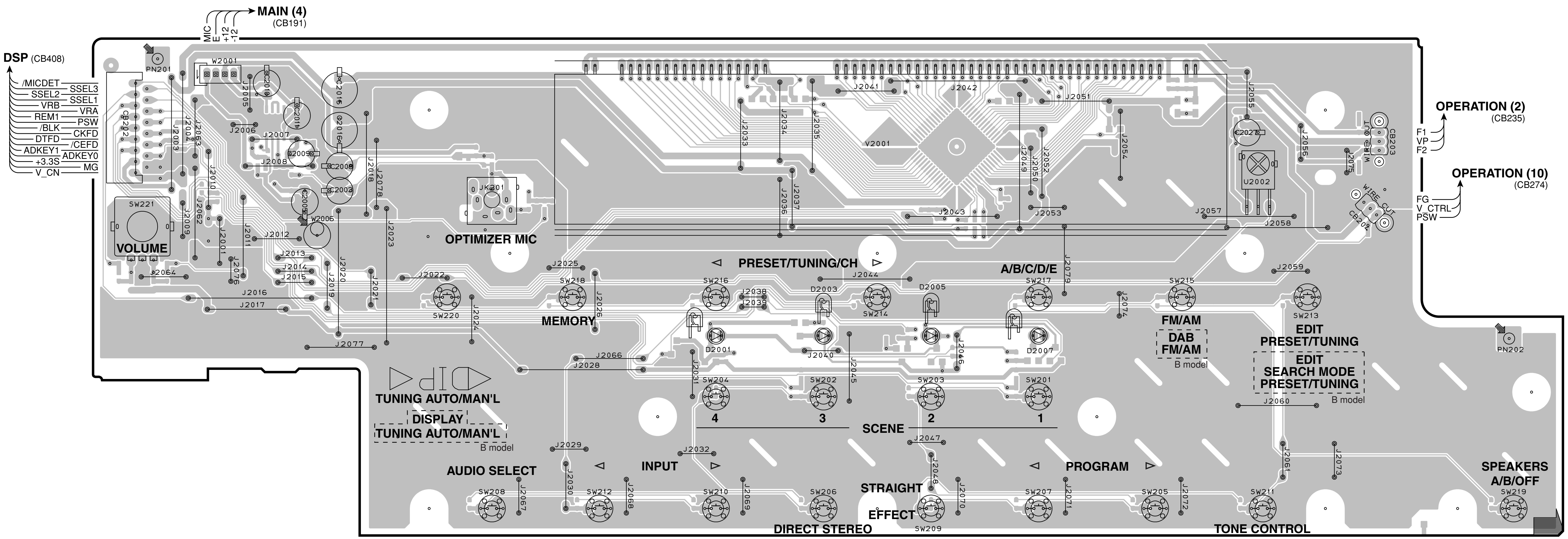
DSP P.C.B. (Side B)



• Semiconductor Location

Ref no.	Location
D407	F3
D409	E3
D602	G3

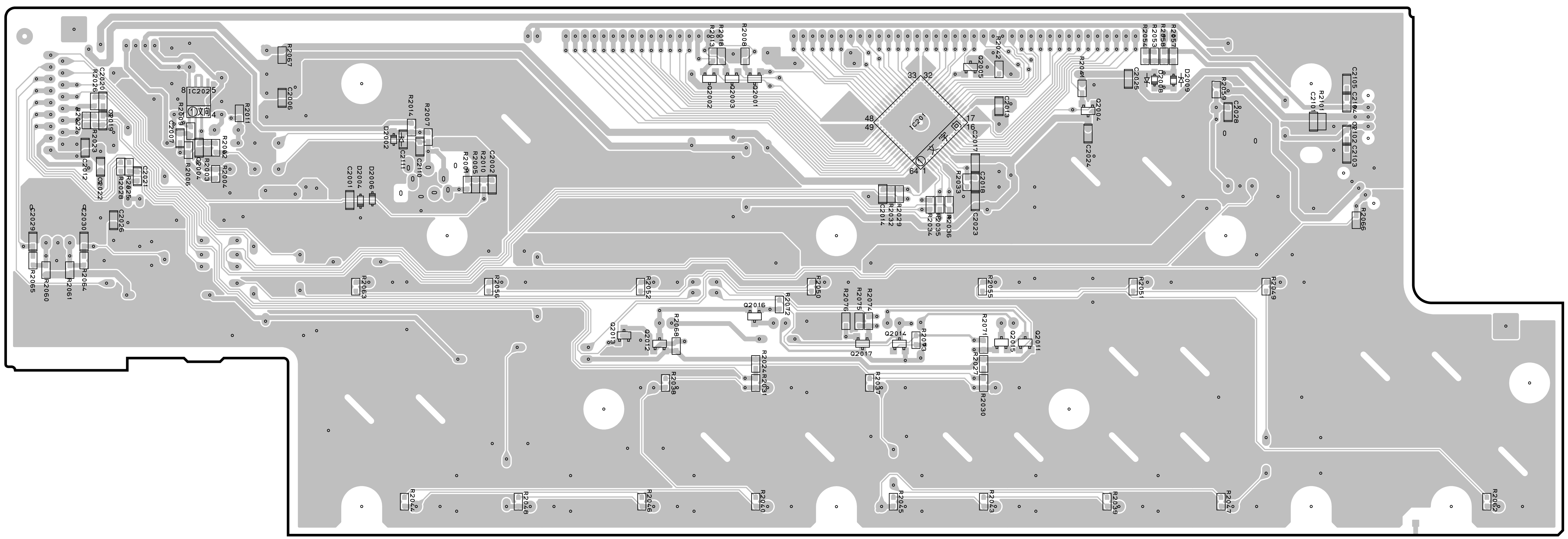
OPERATION (1) P.C.B. (Side A)



• **Semiconductor Location**

Ref no.	Location
D2001	E4
D2003	F4
D2005	F4
D2007	G4

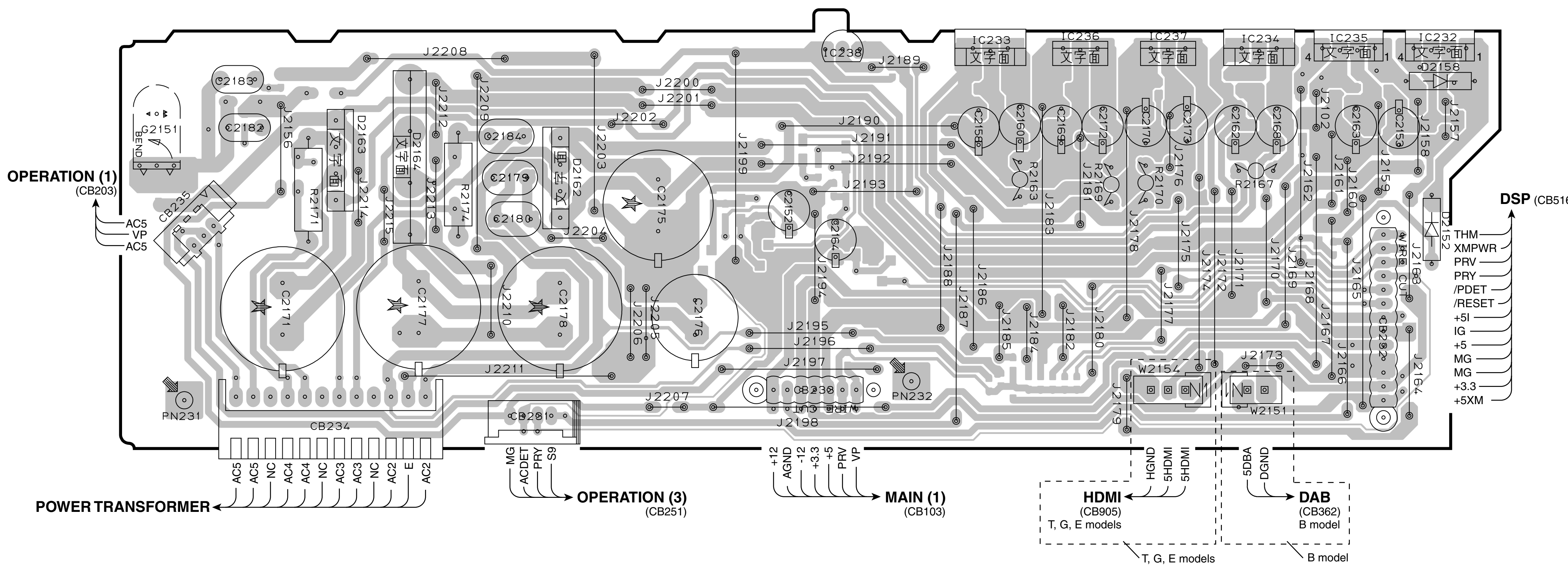
OPERATION (1) P.C.B. (Side B)



• **Semiconductor Location**

Ref no.	Location	Ref no.	Location
D2002	D3	Q2004	F3
D2004	C3	Q2005	G3
D2006	C3	Q2011	G4
D2008	H3	Q2012	E4
D2009	H3	Q2013	E4
IC201	G3	Q2014	F4
IC202	B3	Q2015	G4
Q2001	F3	Q2016	F4
Q2002	E3	Q2017	F4
Q2003	E3		

OPERATION (2) P.C.B. (Side A)



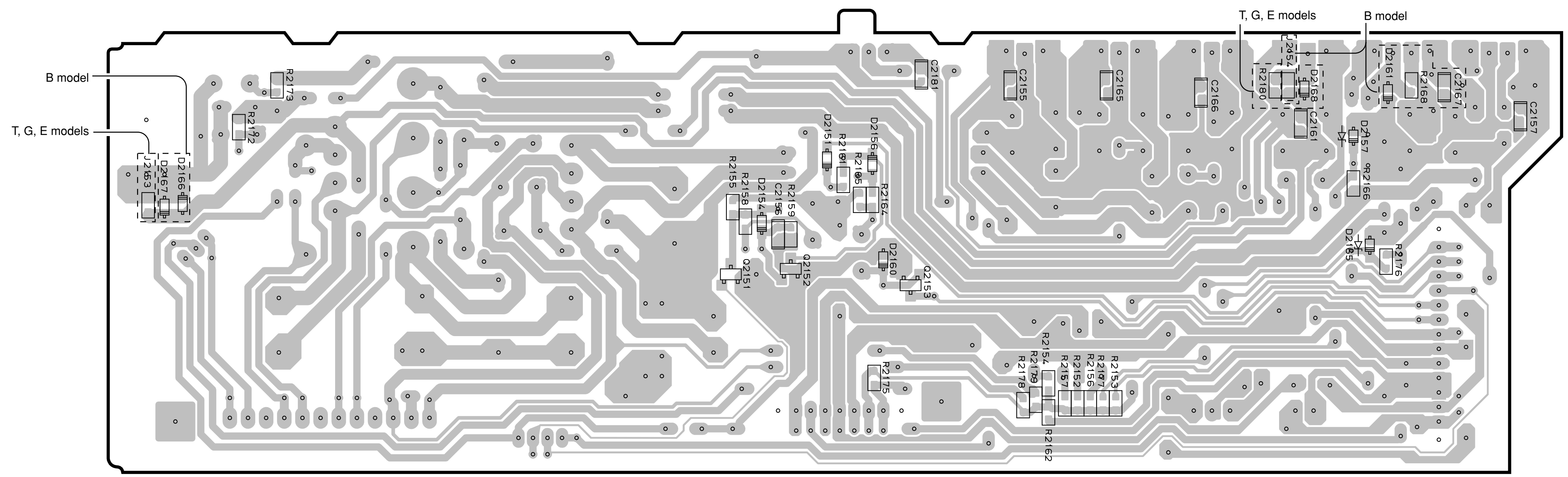
• **Semiconductor Location**

Ref no.	Location
D2152	H4
D2158	H3
D2162	D3
D2163	C3
D2164	C3
IC232	H3
IC233	F3
IC234	G3
IC235	H3
IC236	F3
IC237	G3
IC238	E3

A B C D E F G H I J

1 2 3 4 5 6 7

OPERATION (2) P.C.B. (Side B)



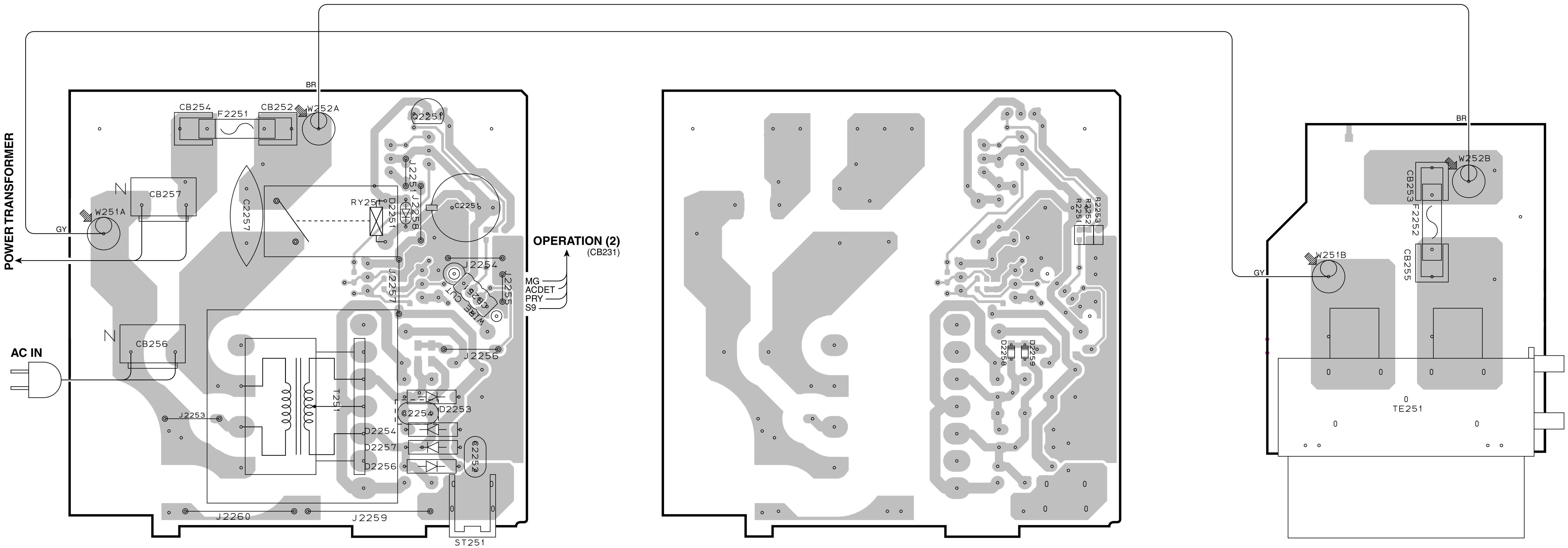
- **Semiconductor Location**

Ref no.	Location
D2151	E3
D2154	E4
D2156	E3
D2157	G3
D2160	E4
D2161	G3
D2165	G4
D2166	B3
D2167	B3
D2168	G3
Q2151	E4
Q2152	E4
Q2153	E4

OPERATION (3) P.C.B. (Side A)

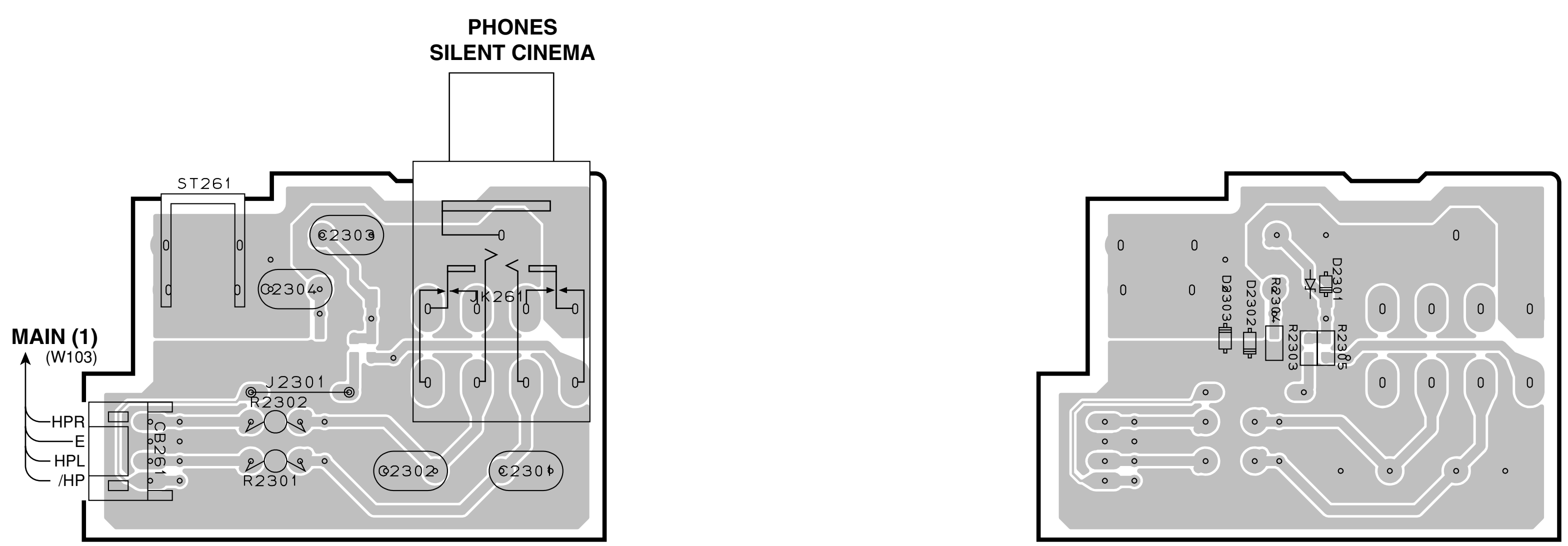
OPERATION (3) P.C.B. (Side B)

OPERATION (4) P.C.B. (Side A)



OPERATION (6) P.C.B. (Side A)

OPERATION (6) P.C.B. (Side B)

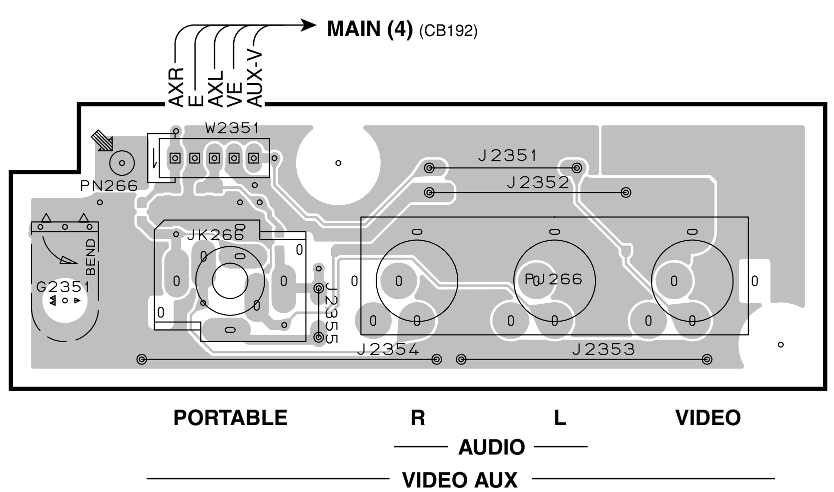


- **Semiconductor Location**

Ref no.	Location
D2251	C3
D2253	D4
D2254	D4
D2256	D4
D2257	D4
D2258	G4
D2259	G4
D2301	E6
D2302	E6
D2303	E6
Q2251	D2

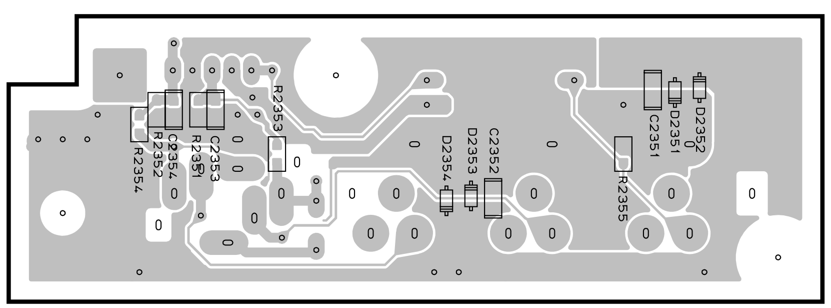
OPERATION (7) P.C.B. (Side A)

B model



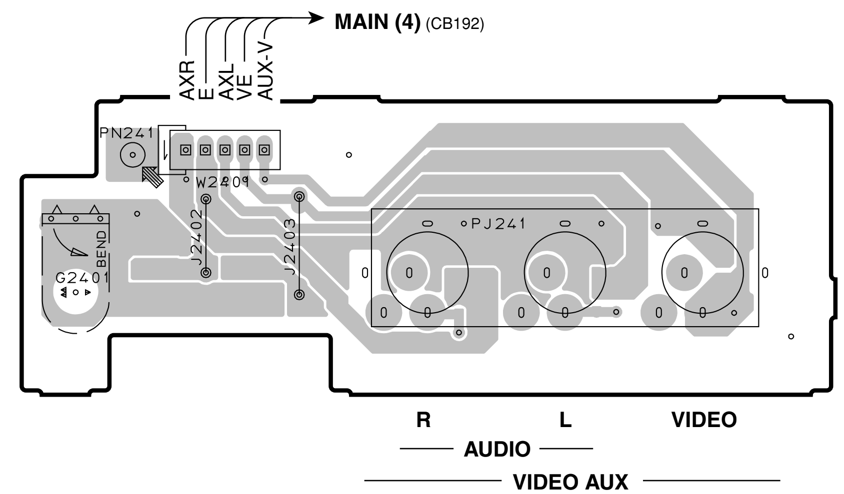
OPERATION (7) P.C.B. (Side B)

B model



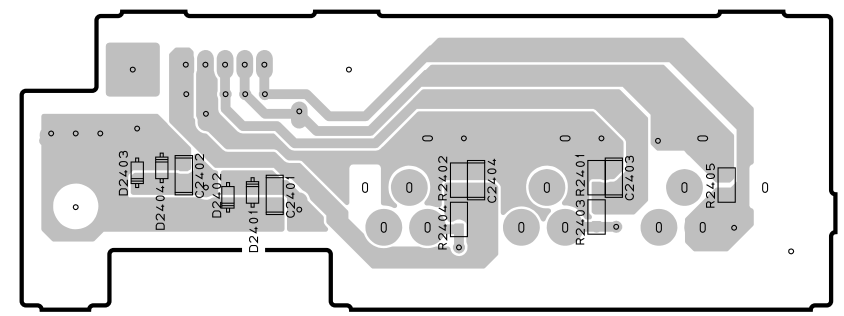
OPERATION (8) P.C.B. (Side A)

T, G, E models

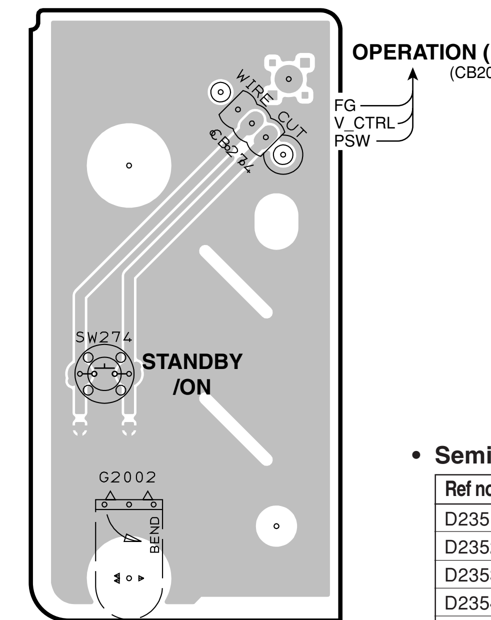


OPERATION (8) P.C.B. (Side B)

T, G, E models



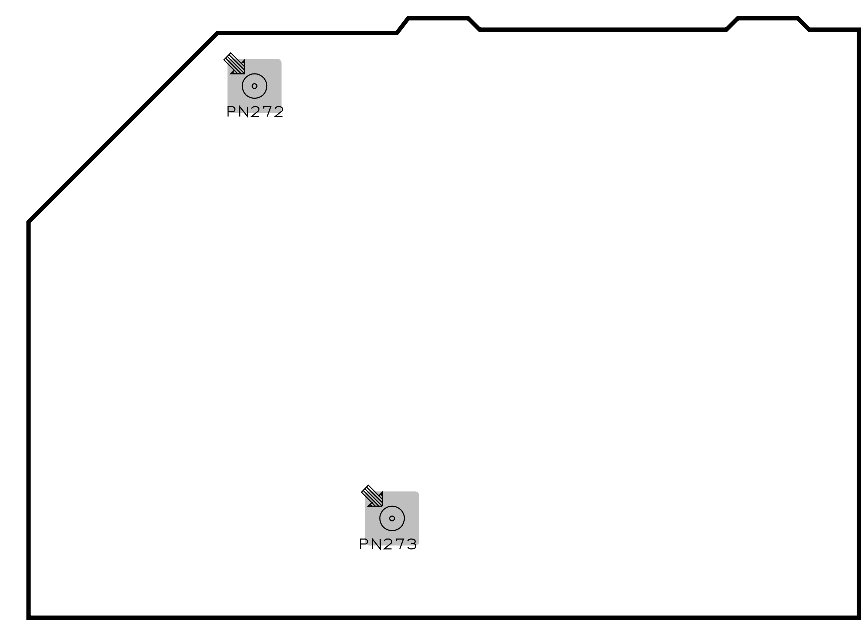
OPERATION (10) P.C.B. (Side A)



• **Semiconductor Location**

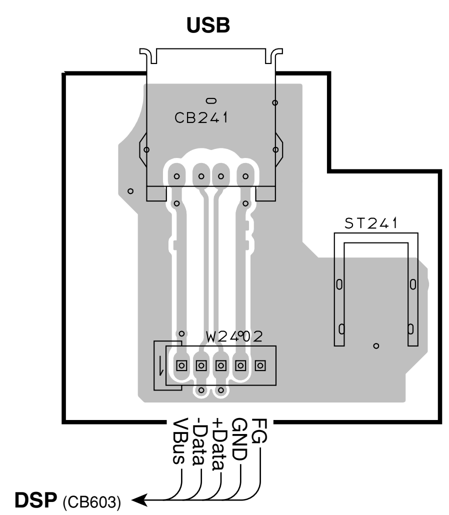
Ref no.	Location
D2351	C4
D2352	C4
D2353	C4
D2354	C4
D2401	E4
D2402	E4
D2403	E4
D2404	E4

OPERATION (11) P.C.B. (Side A)



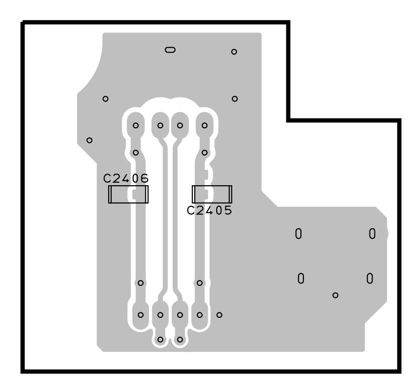
OPERATION (9) P.C.B. (Side A)

T, G, E models

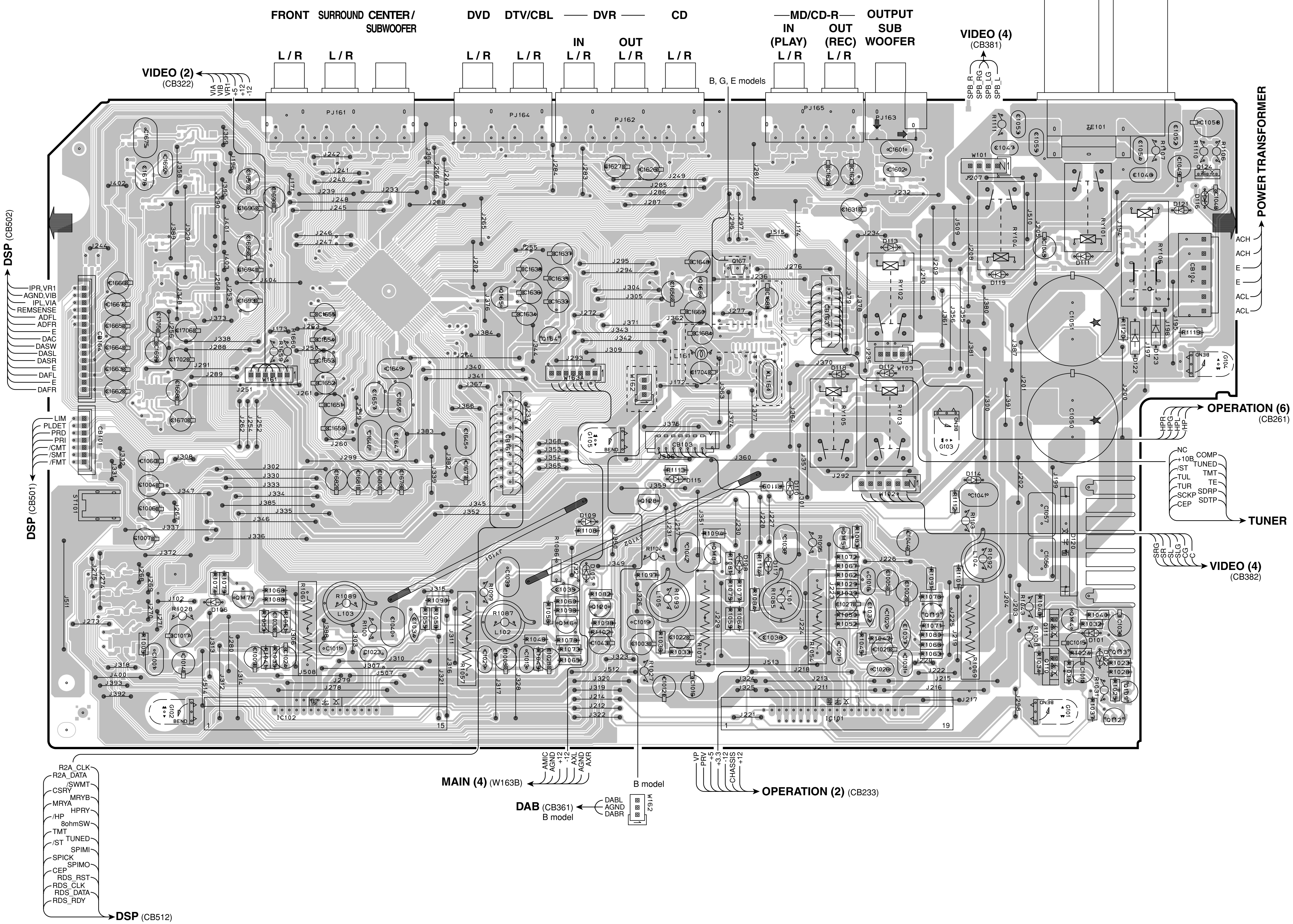


OPERATION (9) P.C.B. (Side B)

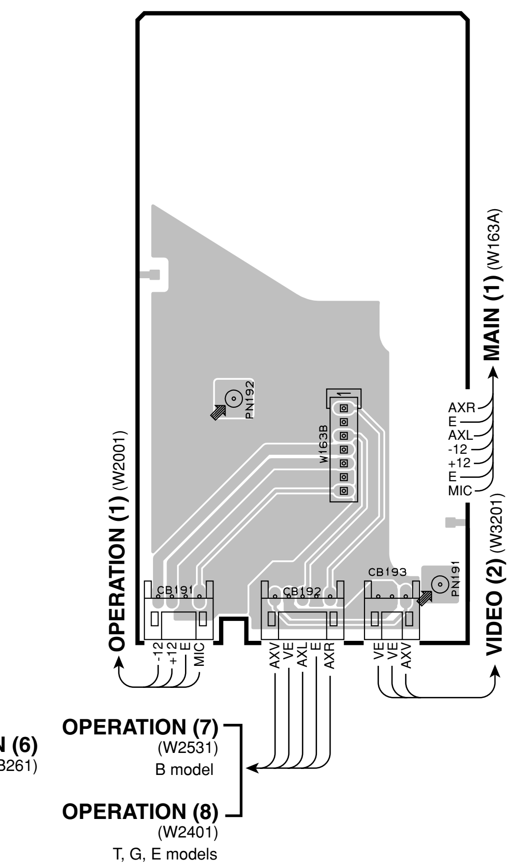
T, G, E models



MAIN (1) P.C.B. (Side A)



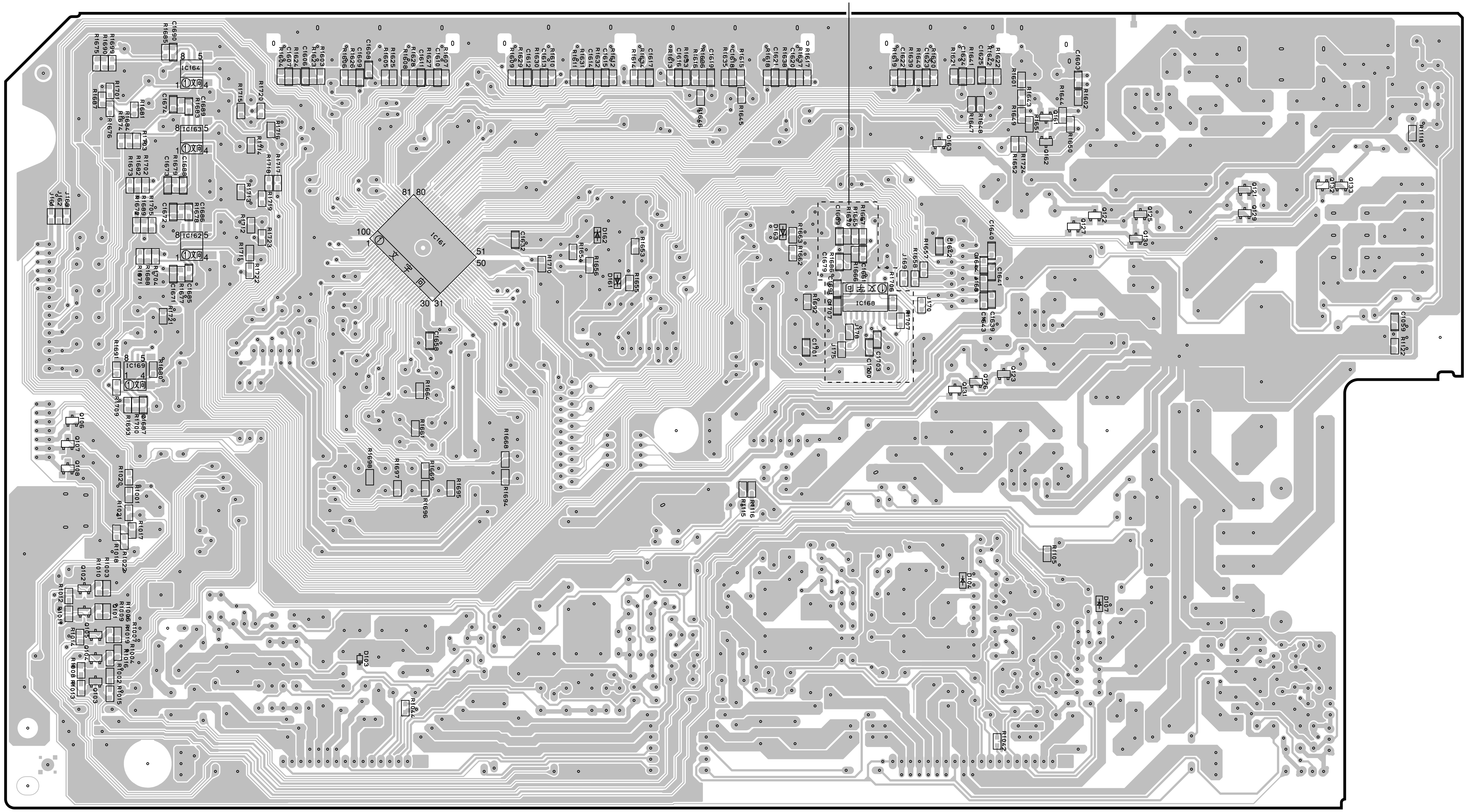
MAIN (4) P.C.B. (Side A)



• Semiconductor Location

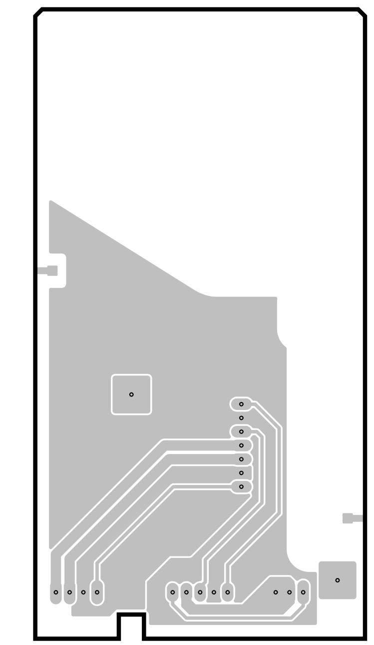
Ref no.	Location	Ref no.	Location
D101	H5	IC101	F6
D102	H6	IC102	C6
D105	E5	Q109	H6
D106	B5	Q110	G6
D108	F5	Q111	G5
D109	E5	Q112	H6
D110	F4	Q113	H5
D111	H3	Q114	H5
D112	F4	Q115	F5
D113	F3	Q116	D5
D114	G4	Q117	B5
D115	E4	Q118	E5
D116	H3	Q119	G5
D117	F5	Q120	E5
D118	F4	Q124	H2
D119	G3	Q128	E5
D120	H5	Q164	D4
D121	H3	Q165	D3
D122	H4	Q166	E3
D123	H3	Q167	E3

MAIN (1) P.C.B. (Side B)



MAIN (4) P.C.B.

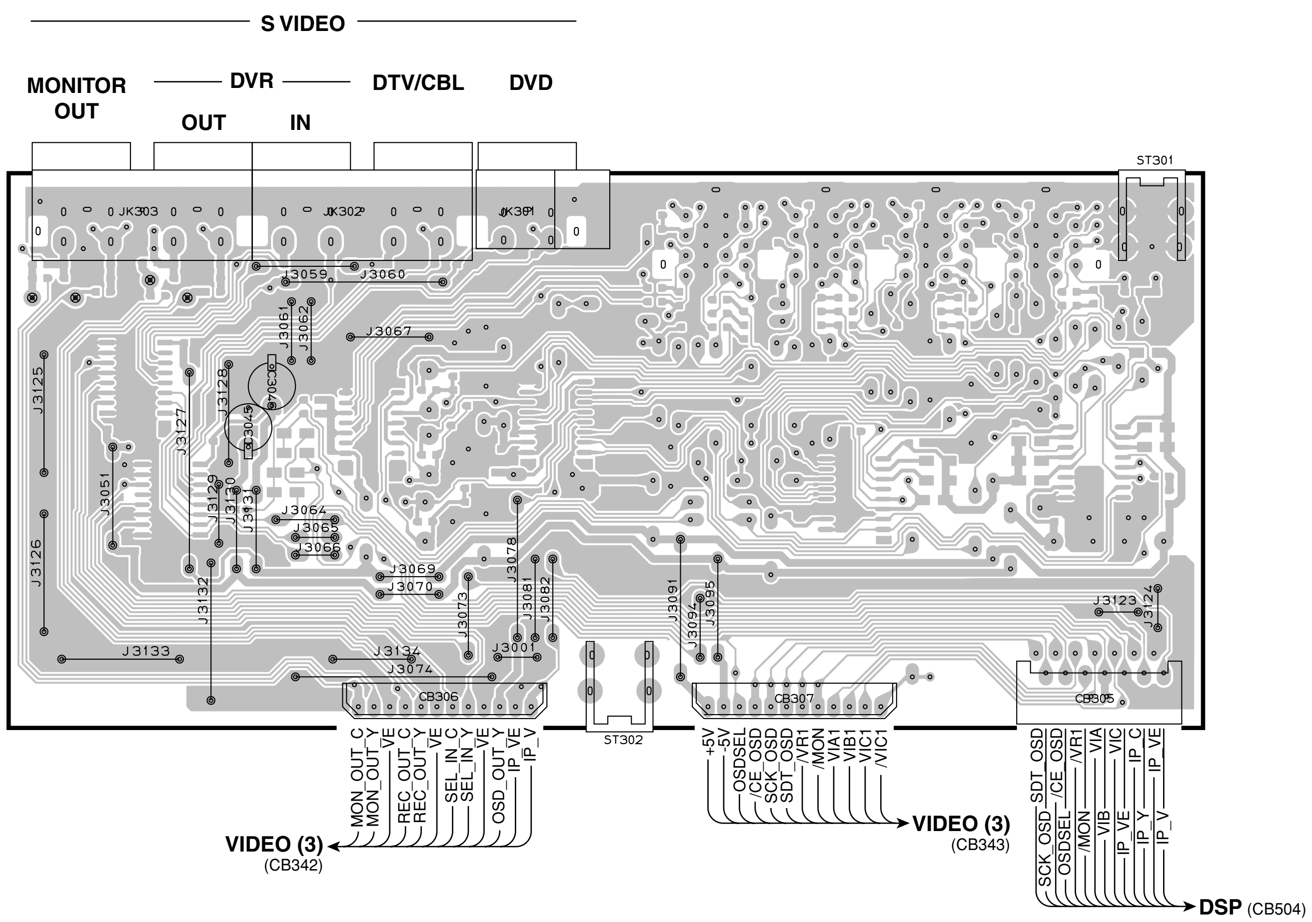
(Side B)



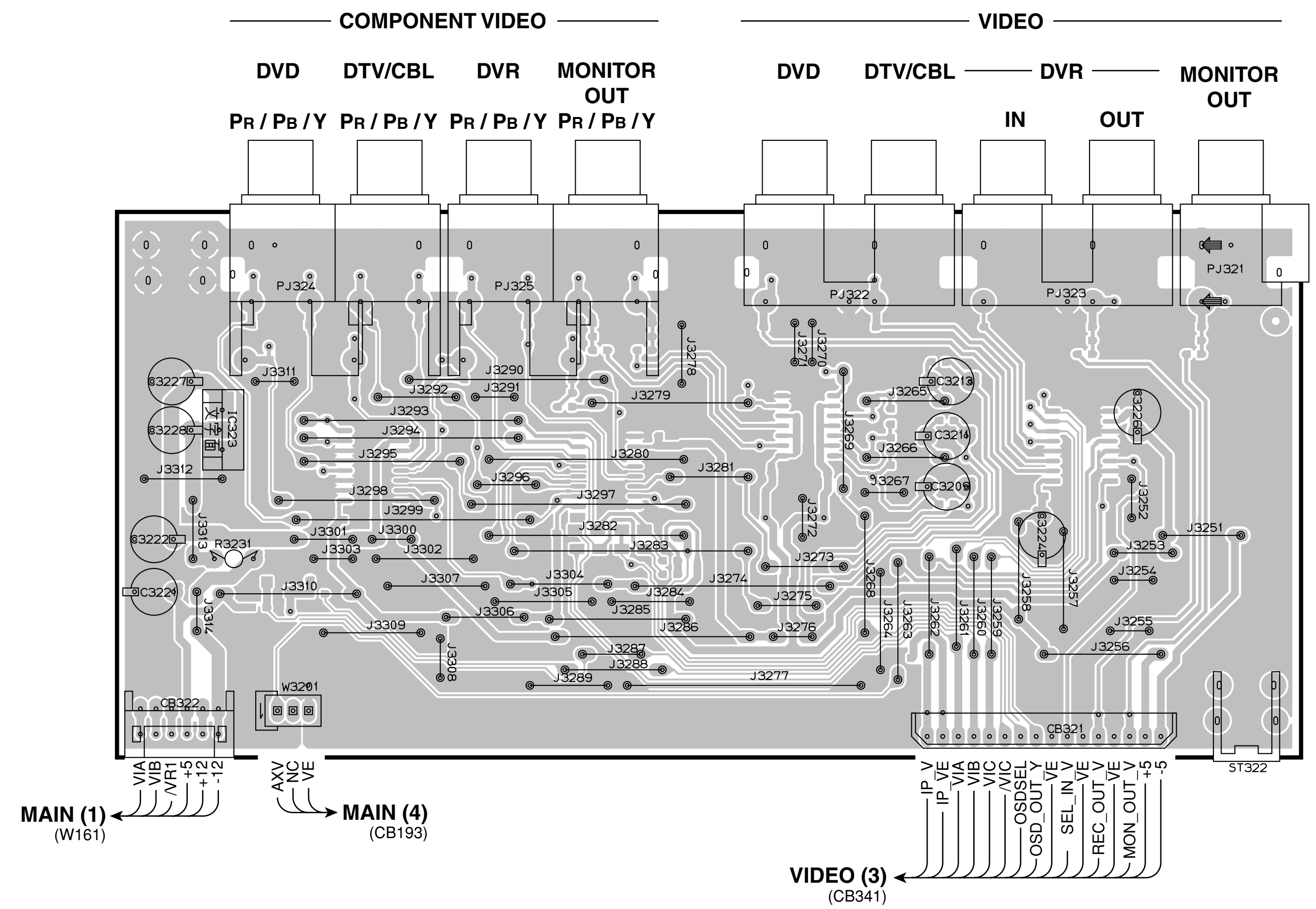
• **Semiconductor Location**

Ref no.	Location	Ref no.	Location
D103	C5	Q106	A4
D104	F5	Q107	A4
D107	G5	Q108	A4
D161	D3	Q121	G3
D162	D3	Q122	G3
D163	E3	Q123	F4
IC161	C3	Q125	G3
IC162	B3	Q126	F4
IC163	B3	Q127	G3
IC164	B2	Q129	G3
IC168	F3	Q130	G3
IC169	B4	Q131	F4
Q101	B5	Q132	H3
Q102	B5	Q133	H3
Q103	B5	Q161	F3
Q104	B5	Q162	F3
Q105	B5	Q163	F3

VIDEO (1) P.C.B. (Side A)



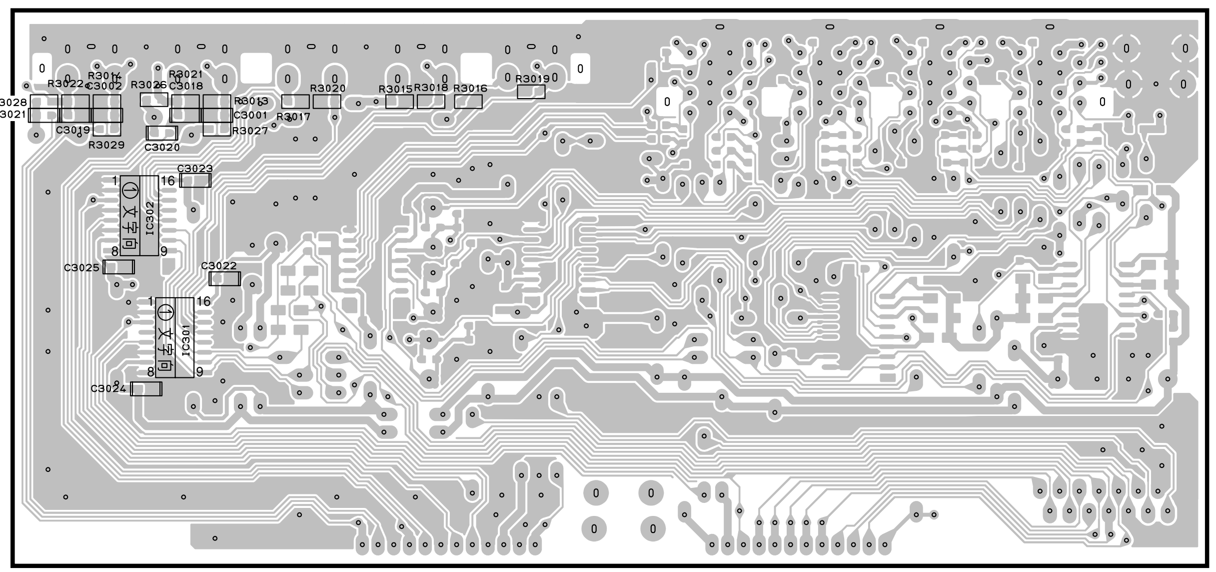
VIDEO (2) P.C.B. (Side A)



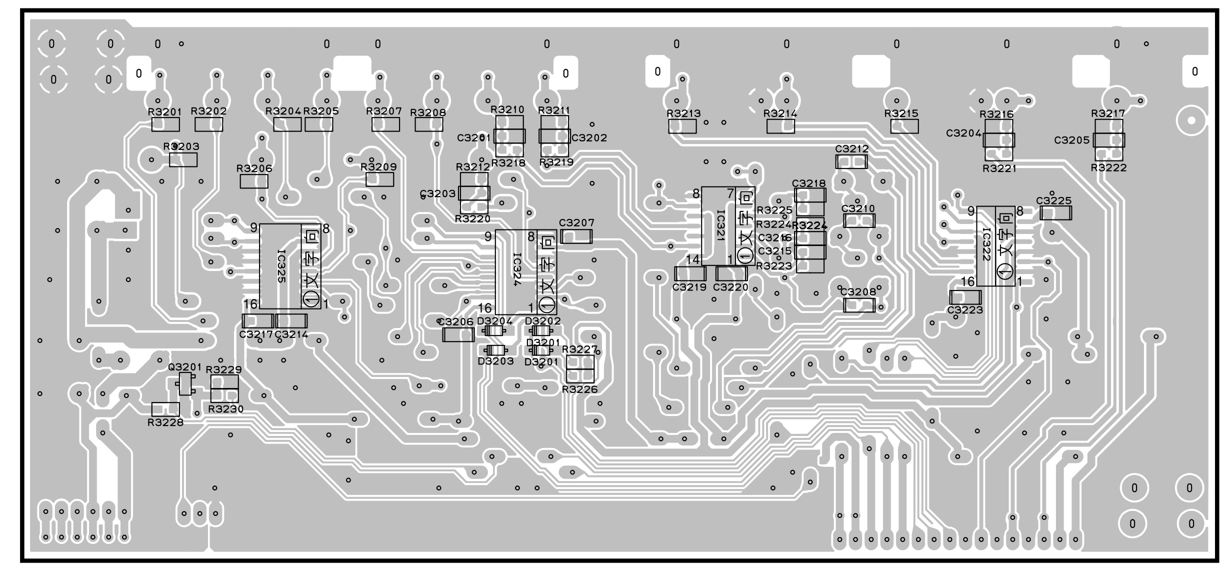
• **Semiconductor Location**

Ref no.	Location
IC323	F4

VIDEO (1) P.C.B. (Side B)



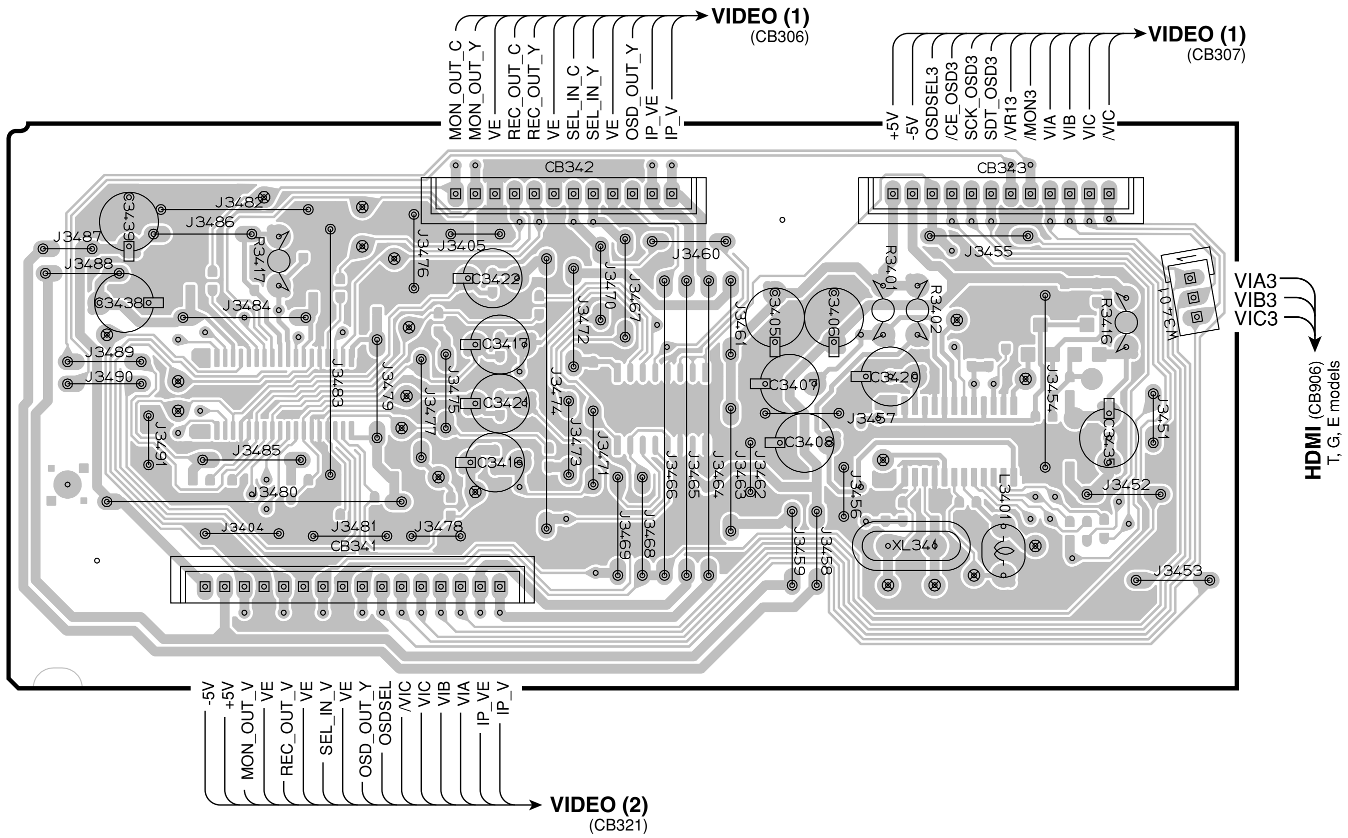
VIDEO (2) P.C.B. (Side B)



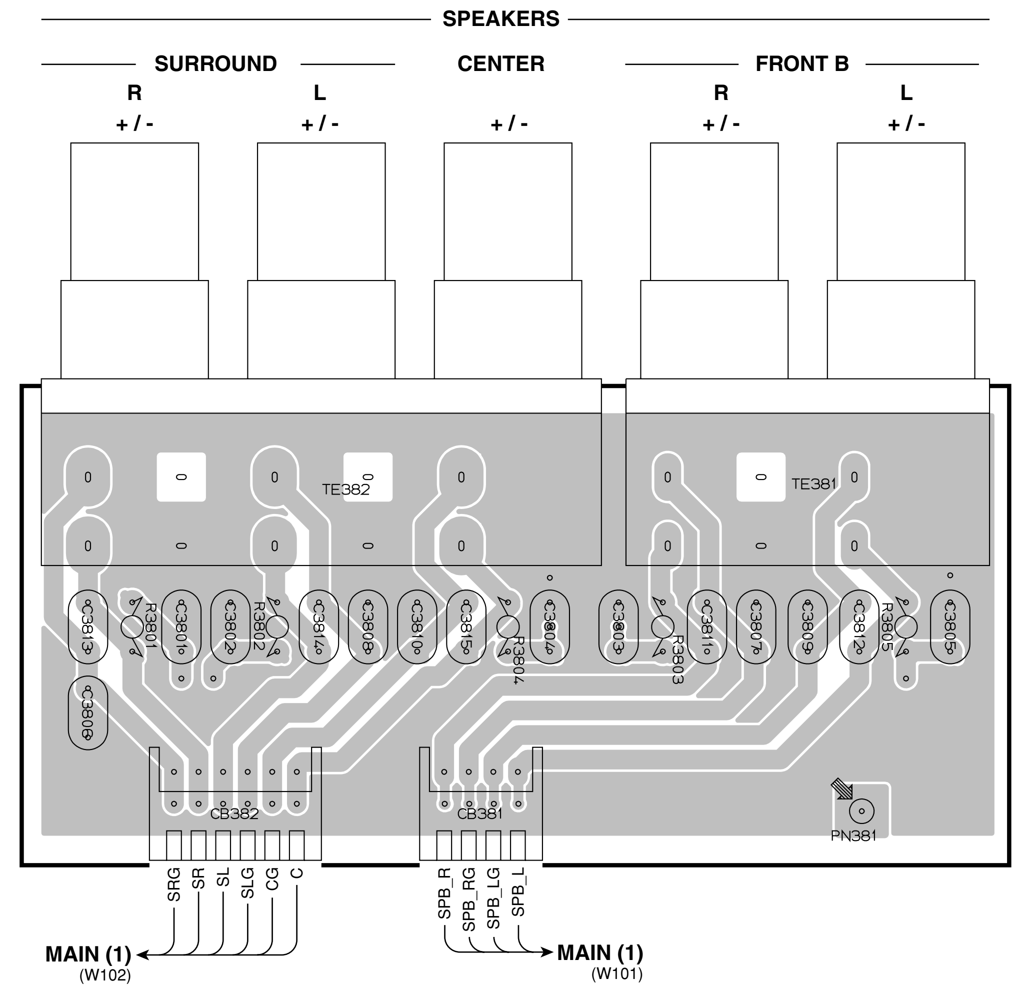
- **Semiconductor Location**

Ref no.	Location
D3201	H4
D3202	H4
D3203	G4
D3204	G4
IC301	A4
IC302	A4
IC321	H4
IC322	I4
IC324	G4
IC325	G4
Q3201	F4

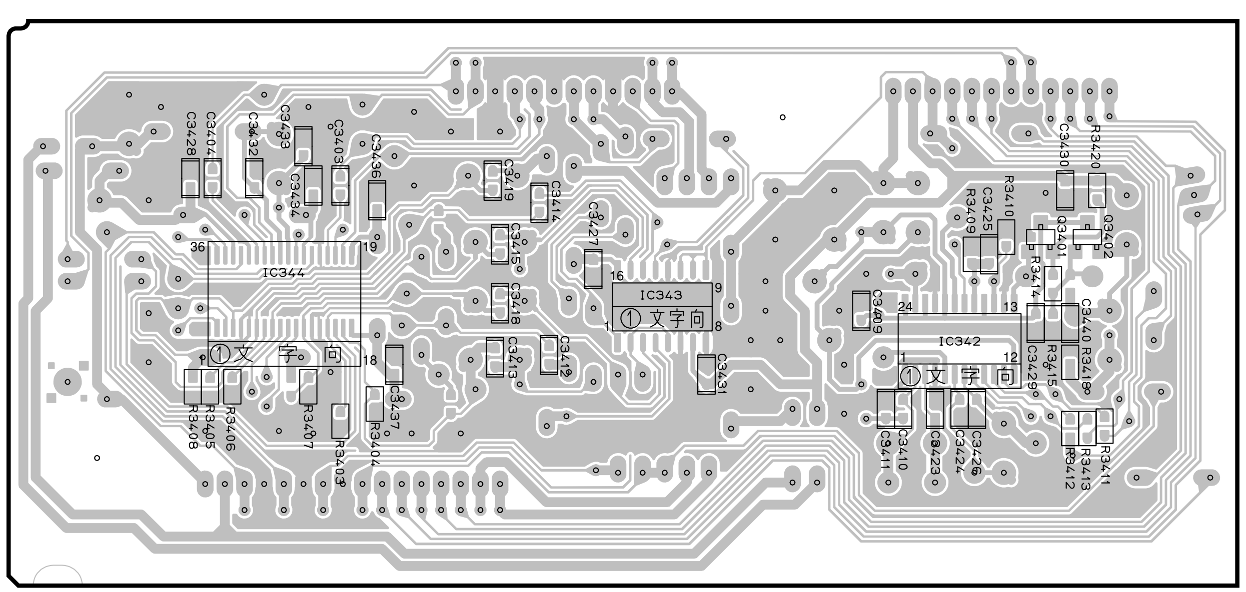
VIDEO (3) P.C.B. (Side A)



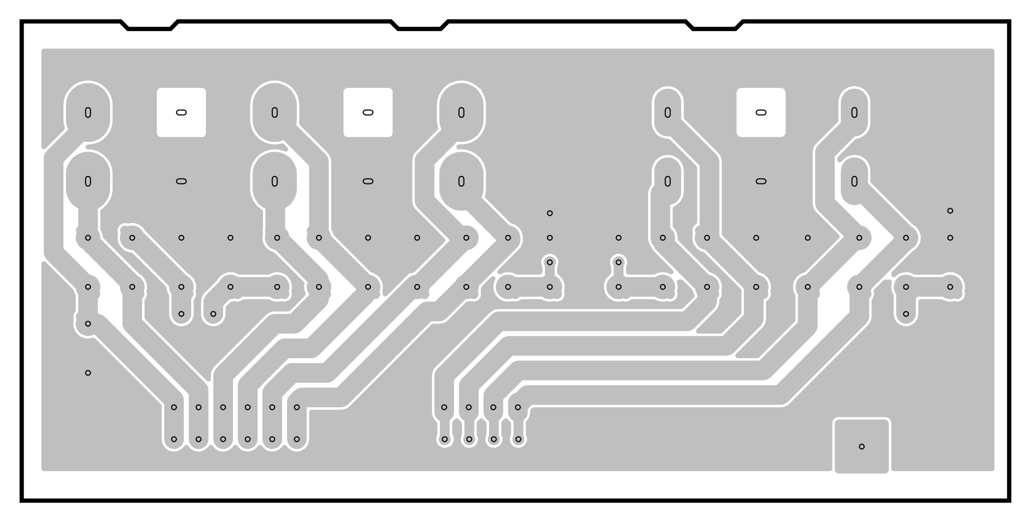
VIDEO (4) P.C.B. (Side A)



VIDEO (3) P.C.B. (Side B)



VIDEO (4) P.C.B. (Side B)

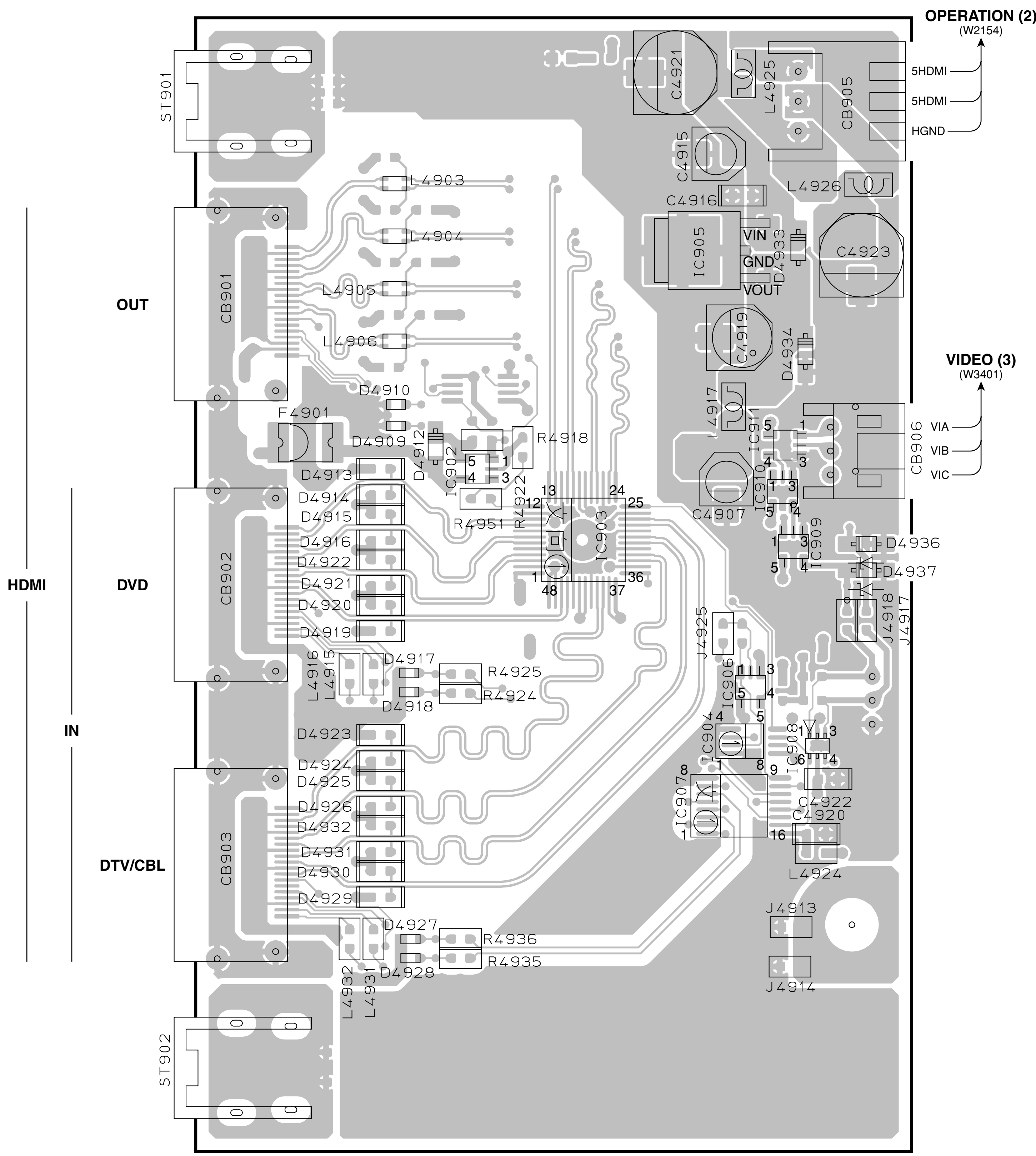


- **Semiconductor Location**

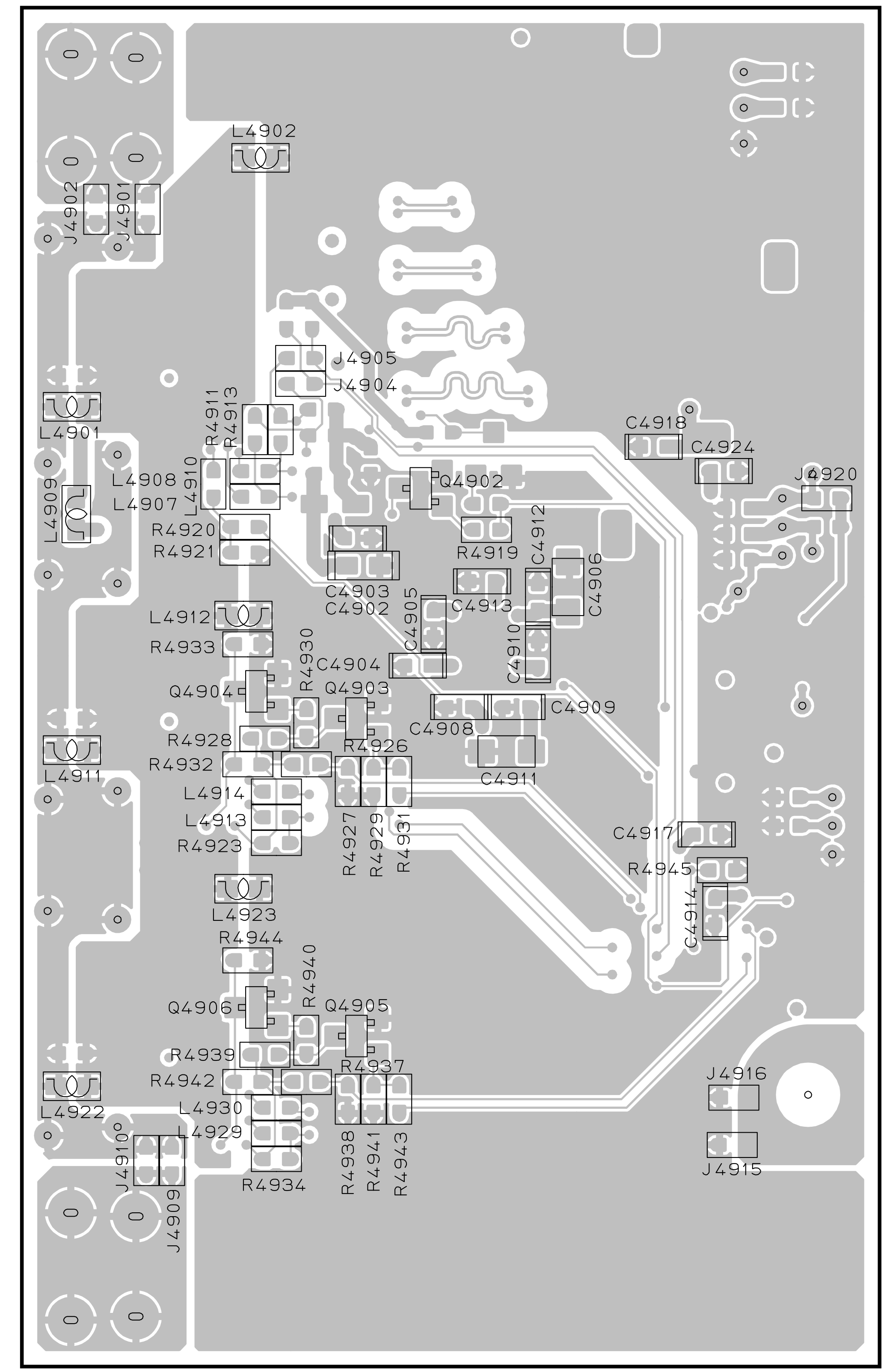
Ref no.	Location
IC342	D6
IC343	C6
IC344	B6
Q3401	E6
Q3402	E6

HDMI P.C.B. (Side A)

T, G, E models



HDMI P.C.B. (Side B)

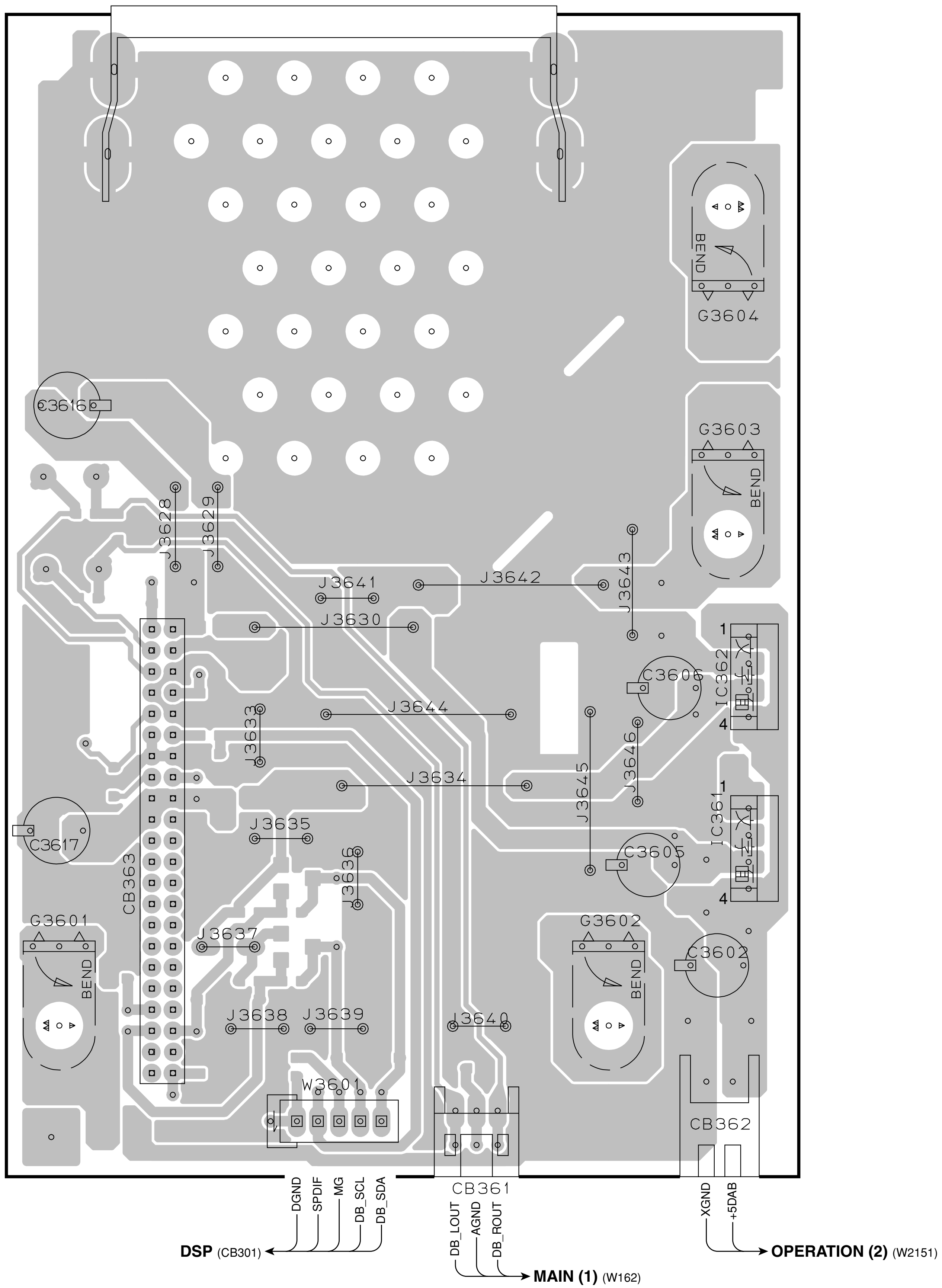


- **Semiconductor Location**

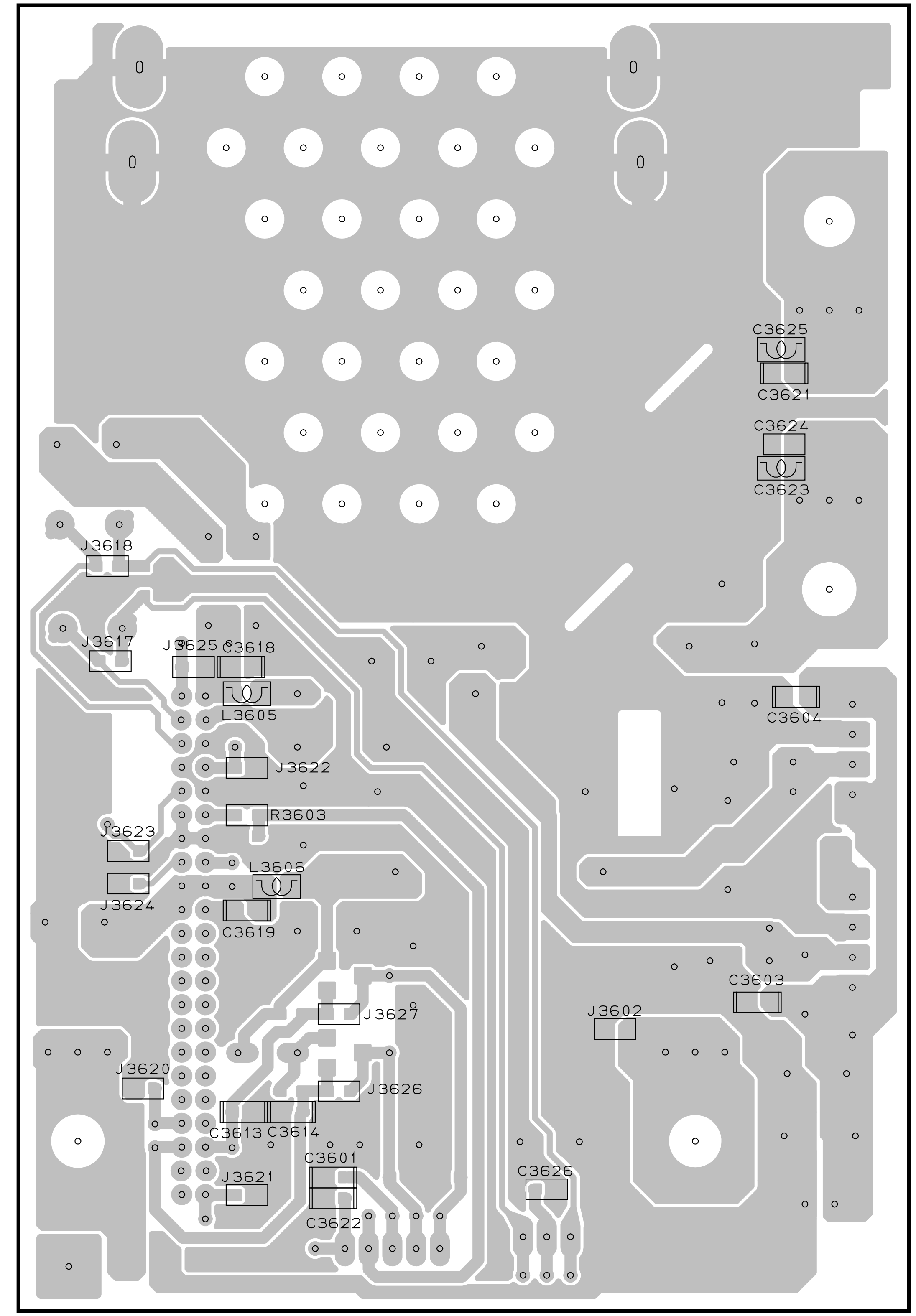
Ref no.	Location
D4909	C4
D4910	C3
D4912	C4
D4913	C4
D4914	C4
D4915	C4
D4916	C4
D4917	C5
D4918	C5
D4919	C5
D4920	C4
D4921	C4
D4922	C4
D4923	C5
D4924	C5
D4925	C5
D4926	C5
D4927	C6
D4928	C6
D4929	C6
D4930	C6
D4931	C6
D4932	C5
D4933	E3
D4934	E3
D4936	E4
D4937	E4
IC902	C4
IC903	D4
IC904	D5
IC905	D3
IC906	D5
IC907	D5
IC908	E5
IC909	E4
IC910	E4
IC911	E4
Q4902	H4
Q4903	H4
Q4904	G4
Q4905	H6
Q4906	G6

DAB P.C.B. (Side A)

B model



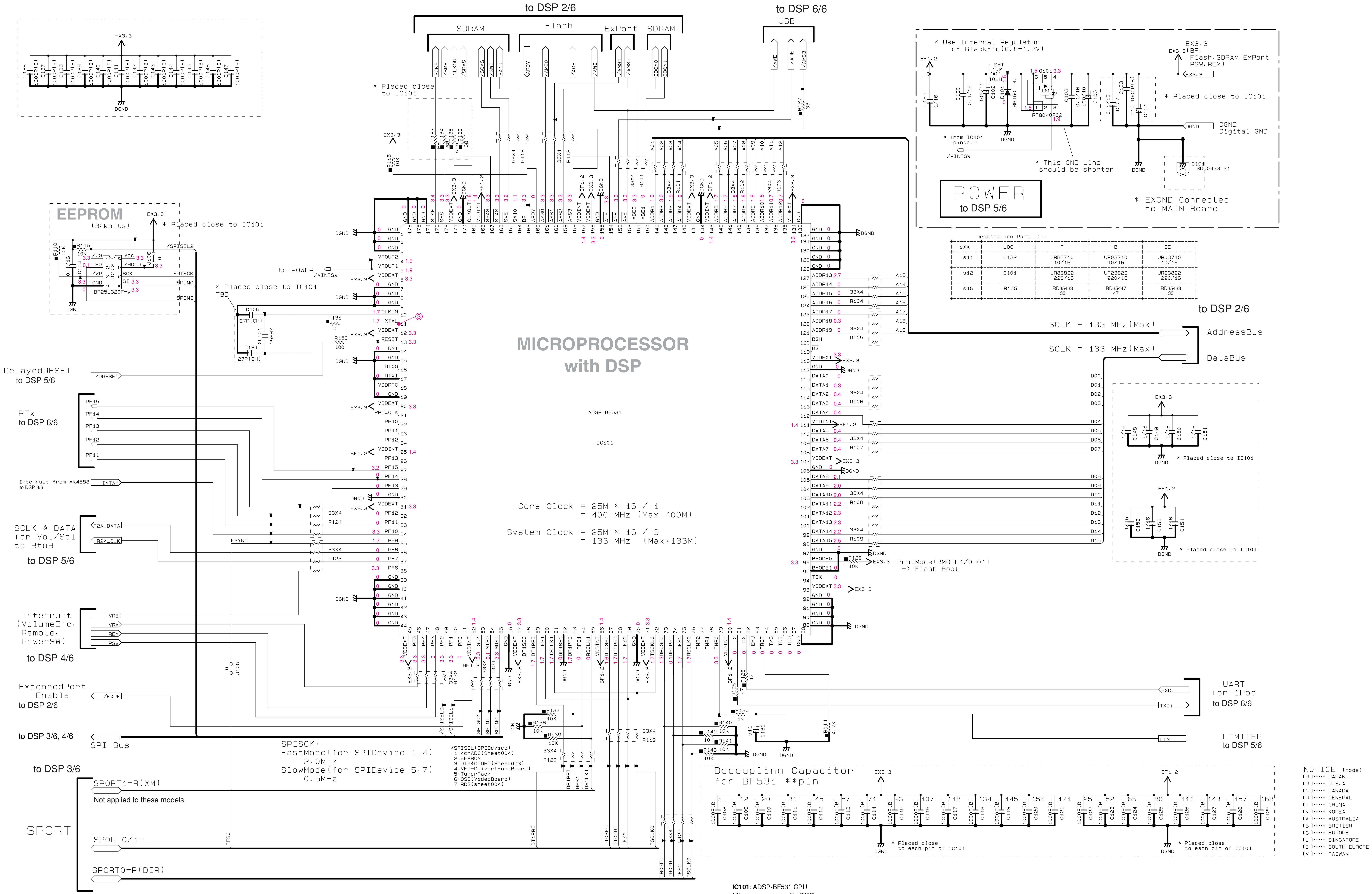
DAB P.C.B. (Side B)



• **Semiconductor Location**

Ref no.	Location
IC361	E5
IC362	E4

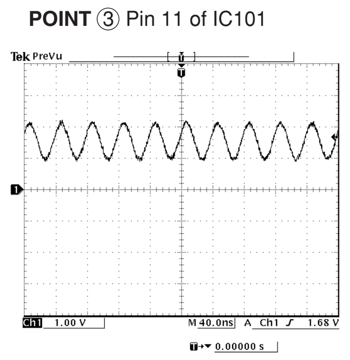
■ SCHEMATIC DIAGRAMS
DSP 1/6



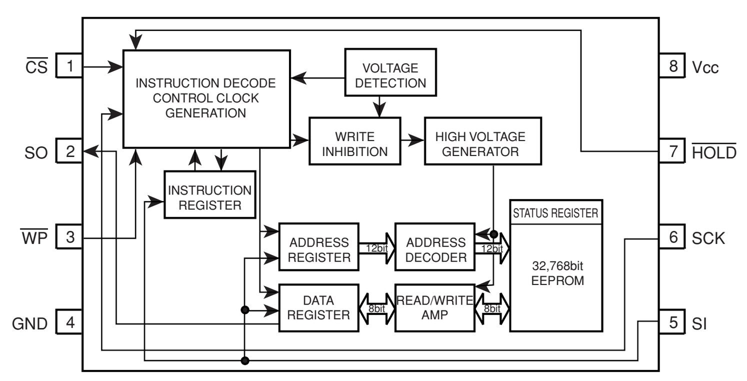
sXX	LOC	T	B	GE
s11	C132	UR83710 10/16	UR03710 10/16	UR03710 10/16
s12	C101	UR83822 220/16	UR23822 220/16	UR23822 220/16
s15	R135	RD35433 33	RD35447 47	RD35433 33

NOTICE (model)
(J)…… JAPAN
(U)…… U.S.A
(C)…… CANADA
(R)…… GENERAL
(T)…… CHINA
(K)…… KOREA
(A)…… AUSTRALIA
(B)…… BRITISH
(G)…… EUROPE
(L)…… SINGAPORE
(E)…… SOUTH EUROPE
(V)…… TAIWAN

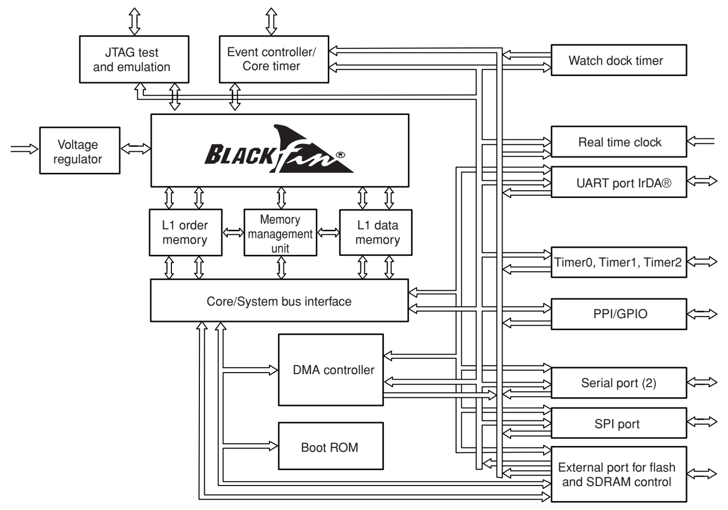
POINT ③ Pin 11 of IC101



IC102: BR25L320F-W EEPROM
SPI BUS 32 k-bit (4,096 x 8-bit) EEPROM

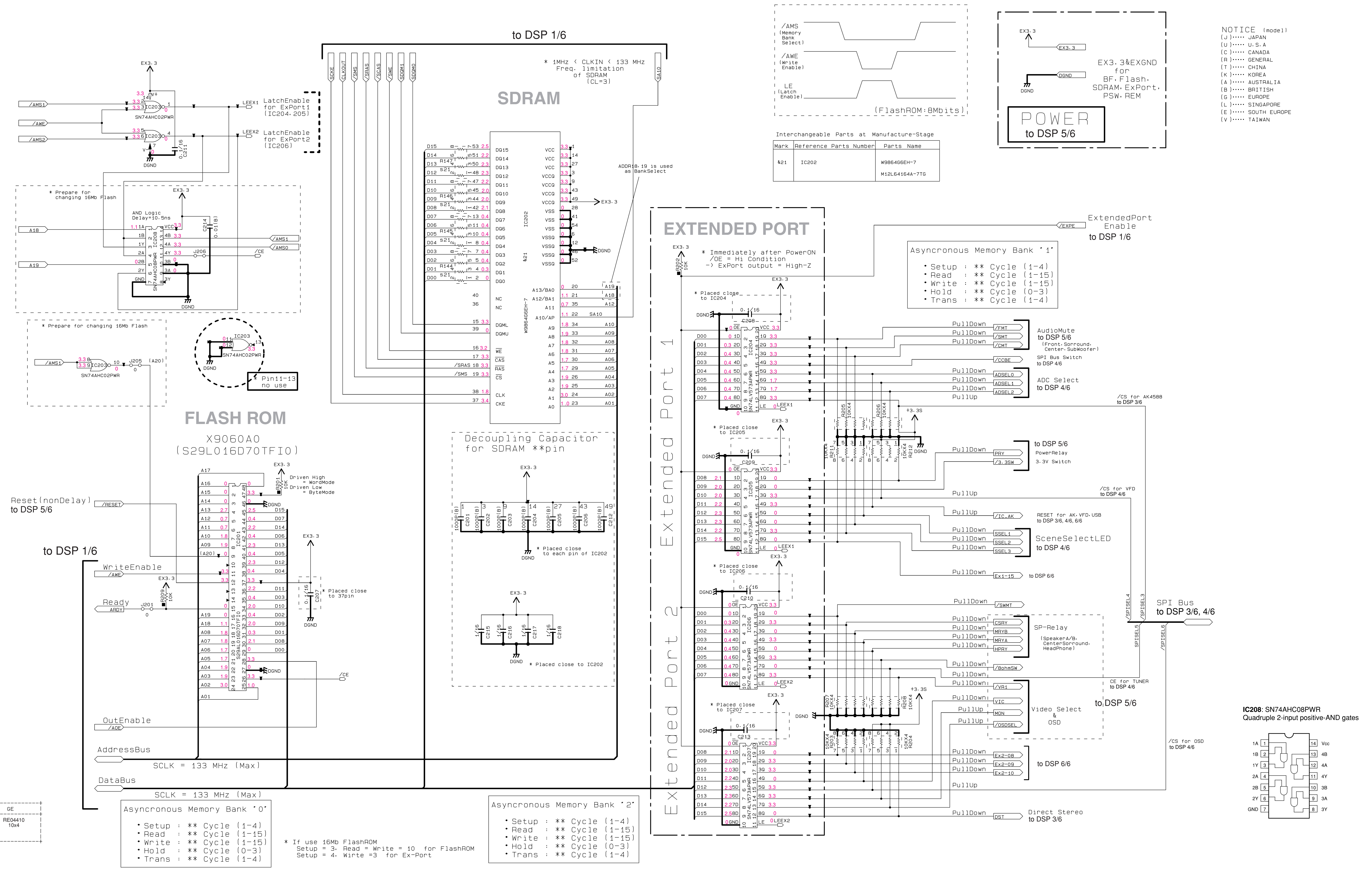


IC101: ADSP-BF531 CPU
Microprocessor with DSP



★ All voltages are measured with a 10MΩ/V DC electronic voltmeter.
★ Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
★ Schematic diagram is subject to change without notice.

DSP 2/6

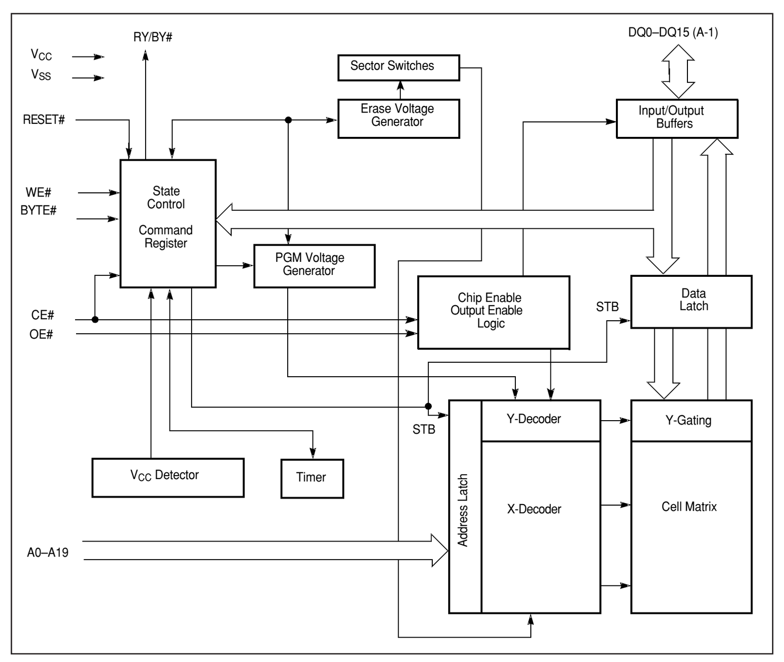


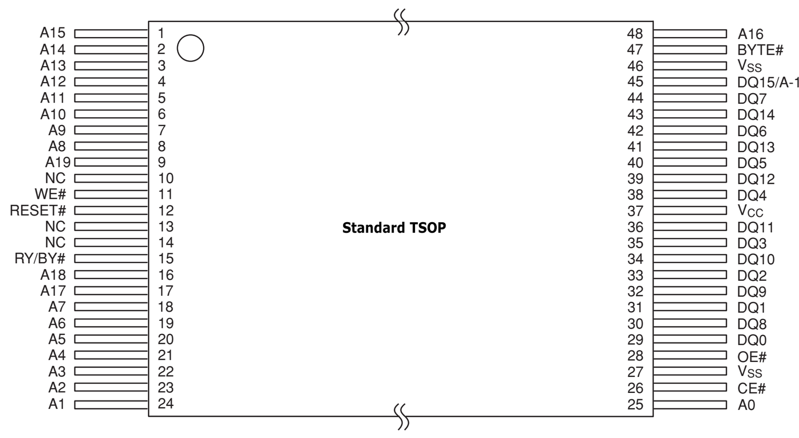
Destination Part List

sXX	LOC	T	B	GE
s21	R144 R145 R146 R147	RE04410 10x4	RE04433 33x4	RE04410 10x4

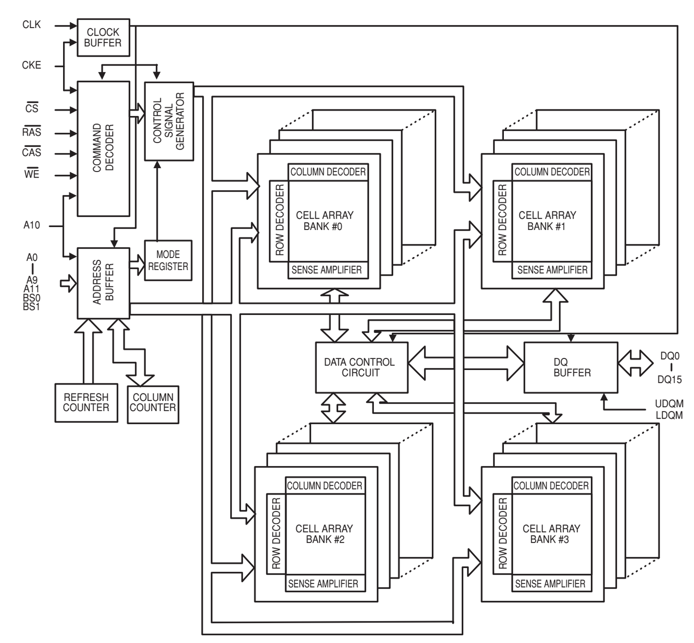
IC208: SN74AHC08PWR
Quadruple 2-input positive-AND gates

IC201: S29AL016D70TFI020
16 M-bits CMOS 3.0 volt-only boot sector flash memory

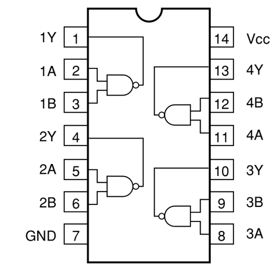




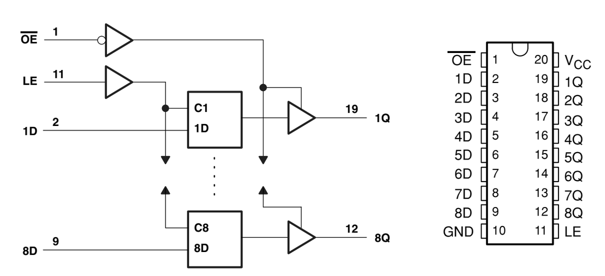
IC202: W9864G6EH-7
1 M x 4 banks x 16-bit SDRAM



IC203: SN74AHC02PWR
Quadruple 2-input positive-NOR gates

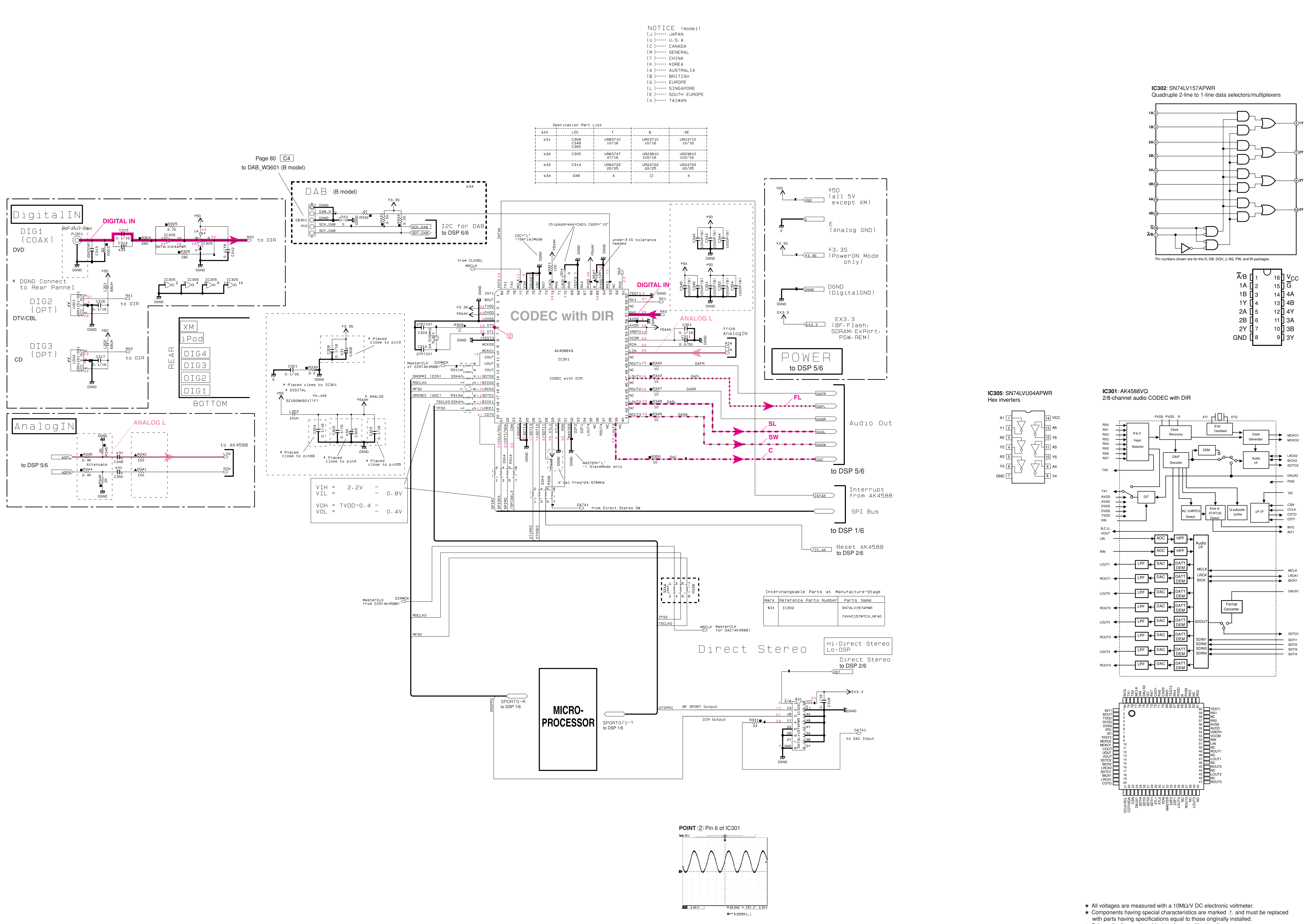


IC204-207: SN74LV573APWR
Octal 3-state D-latches with 3-state outputs



★ All voltages are measured with a 10MΩ/V DC electronic voltmeter.
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★ Schematic diagram is subject to change without notice.

DSP 3/6



NOTICE (model)
(J)····· JAPAN
(U)····· U.S.A
(C)····· CANADA
(R)····· GENERAL
(T)····· CHINA
(K)····· KOREA
(A)····· AUSTRALIA
(B)····· BRITISH
(G)····· EUROPE
(L)····· SINGAPORE
(E)····· SOUTH EUROPE
(V)····· TAIWAN

Destination Part List


sXX	LOC	T	B	GE
s31	C308 C349 C350	UR83710 10/16	UR03710 10/16	UR03710 10/16
s32	C305	UR83747 47/16	UR23810 100/16	UR23810 100/16
s33	C314	UR84722 22/25	UR24722 22/25	UR24722 22/25
s34	DAB	X	O	X

Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
&31	IC302	SN74LV157APWR 74VHC157MTCX_NF40

★ All voltages are measured with a 10MΩ/V DC electronic voltmeter.
★ Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
★ Schematic diagram is subject to change without notice.

DSP 4/6



Destination Part List

sXX	LOC	T	B	GE	
s51	R410	RD35656 5.6K	RD35622 2.2K	RD35610 1K	Destination
s52	R416	RD35668 6.8K	RD35682 8.2K	RD35682 8.2K	
s53	R409	X	RD35710 10K	RD35710 10K	RDS
s54	D402	X	VU17140 UDZS3.3B	VU17140 UDZS3.3B	
s55	R421	X	RD35610 1K	RD35610 1K	RDS
s56	C404	UR83747 47/16	UR03747 47/16	UR03747 47/16	SOUND QUALITY

Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
※1	D405, 407	1SS355 MA111

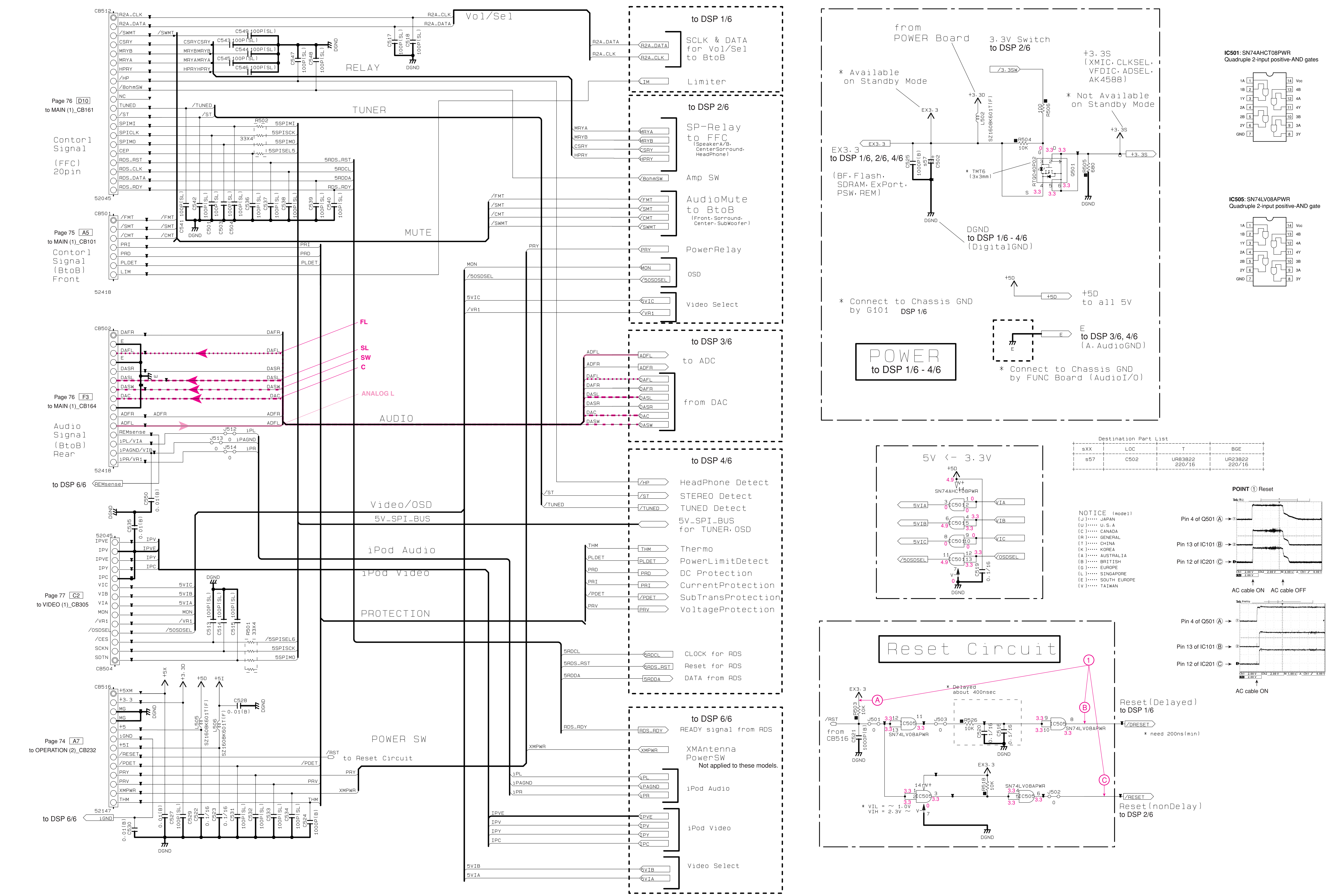
NOTICE (model)
(J)····· JAPAN
(U)····· U.S.A
(C)····· CANADA
(R)····· GENERAL
(T)····· CHINA
(K)····· KOREA
(A)····· AUSTRALIA
(B)····· BRITISH
(G)····· EUROPE
(L)····· SINGAPORE
(E)····· SOUTH EUROPE
(V)····· TAIWAN

* Destination for A/D port

R416 [ohm]	6.8 k	8.2 k	8.2 k
R410 [ohm]	5.6 k	2.2 k	1.0 k
DEST (1 pin) [V]	1.3-1.7	0.5-0.9	0.2-0.5
A/D value (3.3 V=255)	100-132	42-69	16-41
Destination	T	B	G, E

★ All voltages are measured with a 10MΩ/V DC electronic voltmeter.
★ Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
★ Schematic diagram is subject to change without notice.


DSP 5/6



sXX	LOC	T	BGE
s57	C502	UR83822 220/16	UR23822 220/16

- ★ All voltages are measured with a 10MΩ/V DC electronic voltmeter.
- ★ Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
- ★ Schematic diagram is subject to change without notice.

DSP 6/6



Destination Part List

sXX	LOC	T	B	GE	
	iPod	X	O	X	RDS
	USB	O	X	O	
s61	R652 R651	X	RD35433 33	RD35433 33	
s62	R603	X	RD35710 10K	RD35710 10K	
s63	J611	X	RD35000 0	RD35000 0	
s64	R602 R607	X	RD35433 33	X	
s65	J606 J609	RD35000 0	X	RD35000 0	
s66	R608	RD35433 33	X	RD35433 33	
s70	R656 R657	RD35710 10K	X	RD35710 10K	
s71	C609	UA06410 0.01/50	US13510 0.1/16	UA06410 0.01/50	

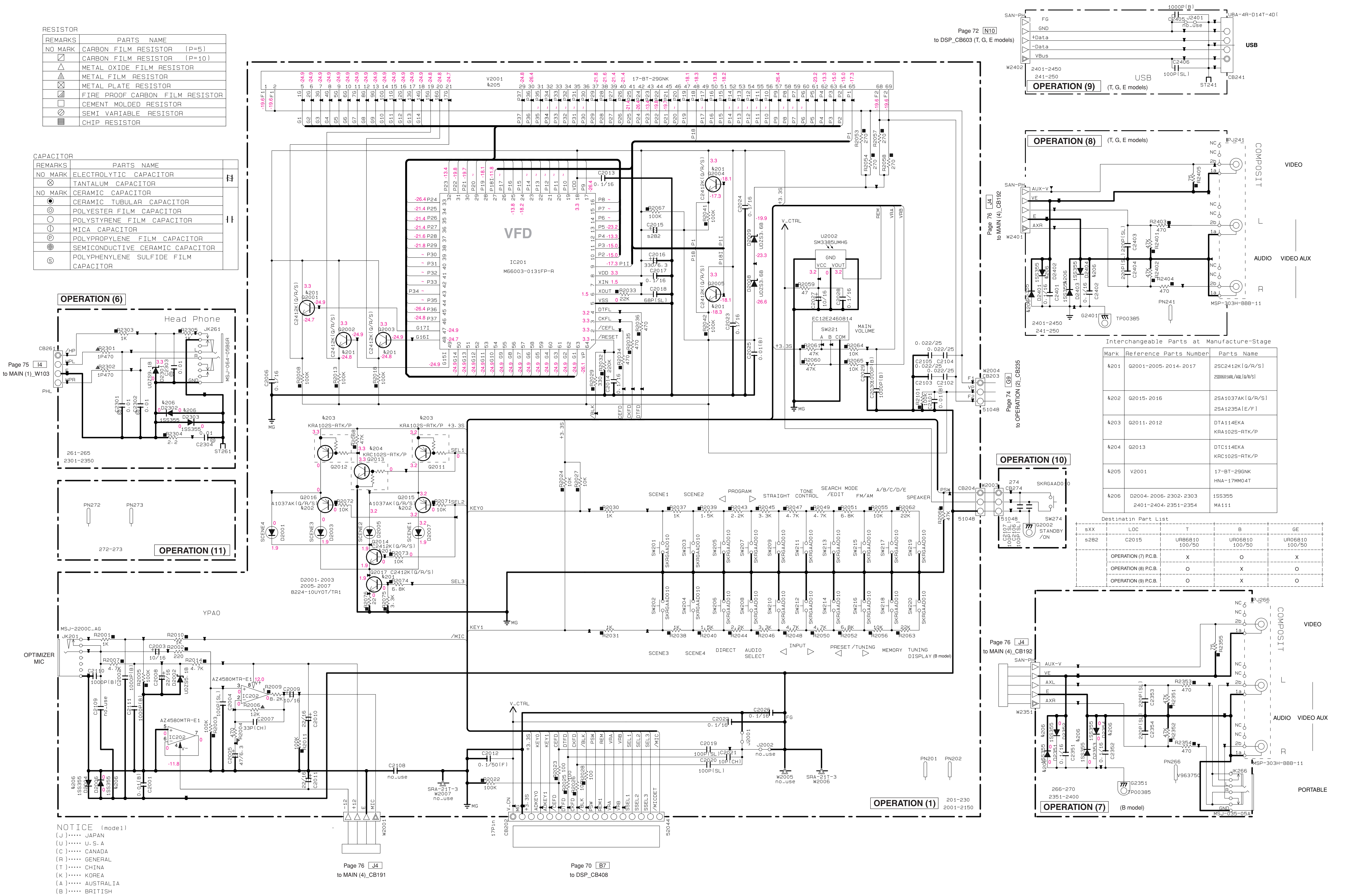
Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
&61	D602	1SS355 MA111

★ All voltages are measured with a 10MΩ/V DC electronic voltmeter.
★ Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
★ Schematic diagram is subject to change without notice.

Page 73 K2
to OPERATION (9)_W2402
(T, G, E models)

OPERATION 1/2



RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
◩	CARBON FILM RESISTOR (P=10)
△	METAL OXIDE FILM RESISTOR
◬	METAL FILM RESISTOR
⊠	METAL PLATE RESISTOR
◩	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
⊘	SEMI VARIABLE RESISTOR
▤	CHIP RESISTOR

CAPACITOR

REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
⊗	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
◉	CERAMIC TUBULAR CAPACITOR
◎	POLYESTER FILM CAPACITOR
○	POLYSTYRENE FILM CAPACITOR
⦶	MICA CAPACITOR
Ⓟ	POLYPROPYLENE FILM CAPACITOR
⊜	SEMICONDUCTIVE CERAMIC CAPACITOR
Ⓢ	POLYPHENYLENE SULFIDE FILM CAPACITOR

Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
&201	Q2001-2005, 2014, 2017	2SC2412K[Q/R/S] 2SD0601ARL/AQL[Q/R/S]
&202	Q2015, 2016	2SA1037AK[Q/R/S] 2SA1235A[E/F]
&203	Q2011, 2012	DTA114EKA KRA102S-RTK/P
&204	Q2013	DTC114EKA KRC102S-RTK/P
&205	V2001	17-BT-29GNK HNA-17MM04T
&206	D2004, 2006, 2302, 2303 2401-2404, 2351-2354	1SS355 MA111

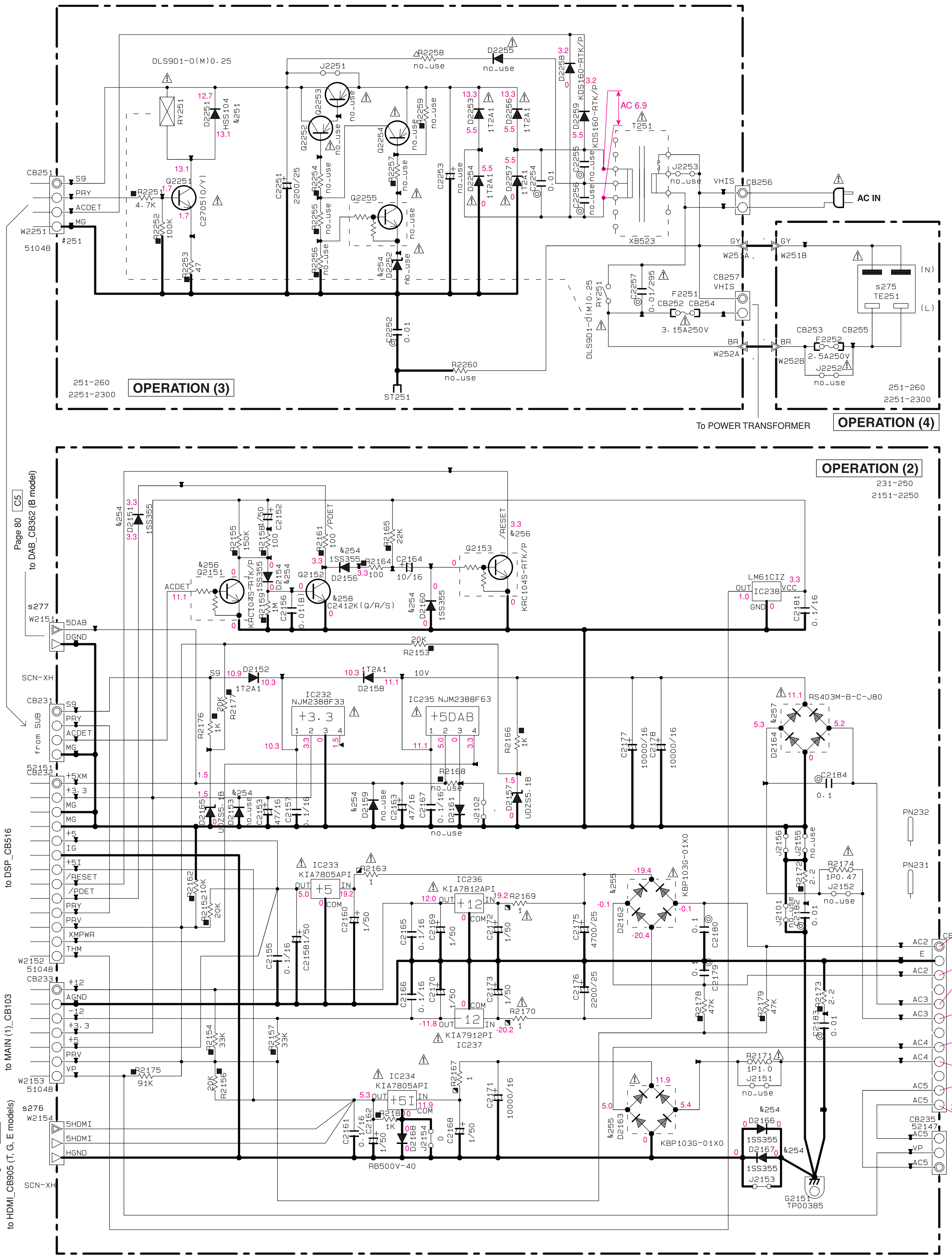
Destinatin Part List

sXX	LOC	T	B	GE
s282	C2015	UR86810 100/50	UR06810 100/50	UR06810 100/50
	OPERATION (7) P.C.B.	X	O	X
	OPERATION (8) P.C.B.	O	X	O
	OPERATION (9) P.C.B.	O	X	O

NOTICE (model)
(J)…… JAPAN
(U)…… U.S.A
(C)…… CANADA
(R)…… GENERAL
(T)…… CHINA
(K)…… KOREA
(A)…… AUSTRALIA
(B)…… BRITISH
(G)…… EUROPE
(L)…… SINGAPORE
(E)…… SOUTH EUROPE
(V)…… TAIWAN

★ All voltages are measured with a 10MΩ/V DC electronic voltmeter.
★ Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
★ Schematic diagram is subject to change without notice.

OPERATION 2/2



NOTICE (model)
(J)····· JAPAN
(U)····· U.S.A
(C)····· CANADA
(R)····· GENERAL
(T)····· CHINA
(K)····· KOREA
(A)····· AUSTRALIA
(B)····· BRITISH
(G)····· EUROPE
(L)····· SINGAPORE
(E)····· SOUTH EUROPE
(V)····· TAIWAN

Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
&251	D2251	HSS104 1SS133 1SS176
&252		
&253		
&254	D2151, 2154, 2156, 2160 D2166, 2167 (B model)	1SS355 MA111
&255	D2162, 2163	KBP103G RS103
&256	Q2151, 2153	DTC144EKA KRC104S-RTK/P
&257	D2164	RS403M-B-C-J80 TS4B03G-07
&258	Q2152	2SC2412K[Q/R/S] 2SD601ARL/AQL[Q/R/S]

Destinatın Part Lıst

sXX	LOC	T	B	GE
s275	TE251	V586740 AC-182-GB-11VGY	VU54330 S2-772T-210	VU54340 S2-762T-214
s276	W2154	MB20310 3P 100mm	X	MB20310 3P 100mm
s277	W2151	X	MB20235 2P 350mm	X

RESISTOR

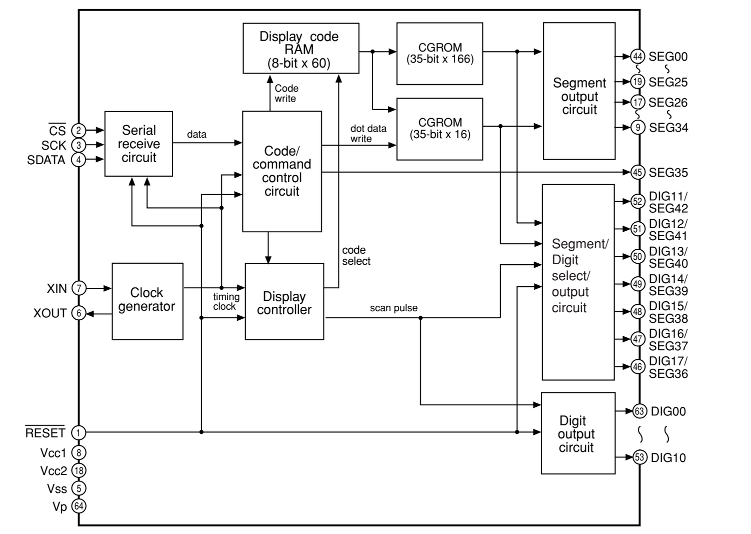
REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
◪	CARBON FILM RESISTOR (P=10)
△	METAL OXIDE FILM RESISTOR
△	METAL FILM RESISTOR
⊠	METAL PLATE RESISTOR
◪	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
⊘	SEMI VARIABLE RESISTOR
▤	CHIP RESISTOR

CAPACITOR

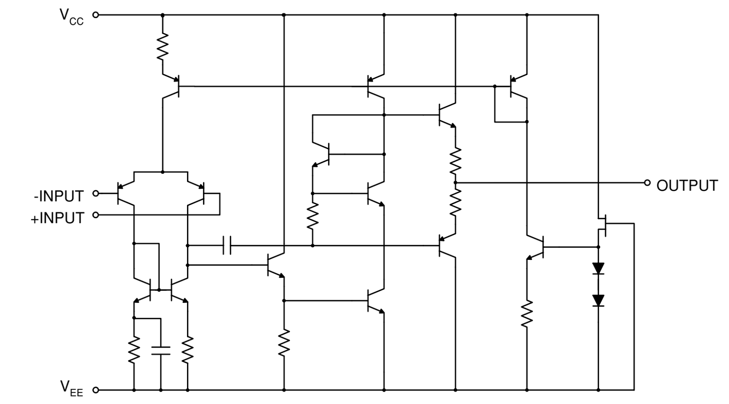
REMARKS	PARTS NAME	
NO MARK	ELECTROLYTIC CAPACITOR	
⊗	TANTALUM CAPACITOR	
NO MARK	CERAMIC CAPACITOR	
◉	CERAMIC TUBULAR CAPACITOR	
◎	POLYESTER FILM CAPACITOR	
○	POLYSTYRENE FILM CAPACITOR	
⦶	MICA CAPACITOR	
Ⓟ	POLYPROPYLENE FILM CAPACITOR	
⊜	SEMICONDUCTIVE CERAMIC CAPACITOR	

IC BLOCK DIAGRAMS OPERATION 1/2

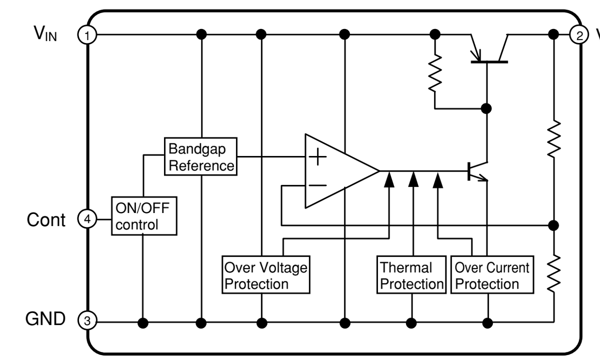
IC201: M66003-0131FP-R
18 digit 5 x 7 segment VFD controller/driver



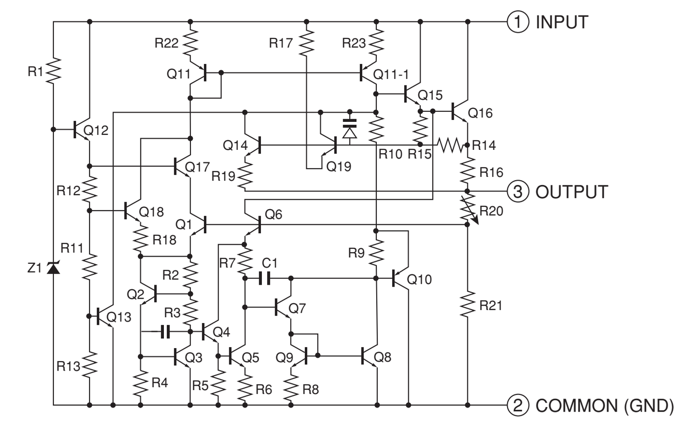
IC202: AZ4580MTR-E1
Dual low noise operational amplifiers



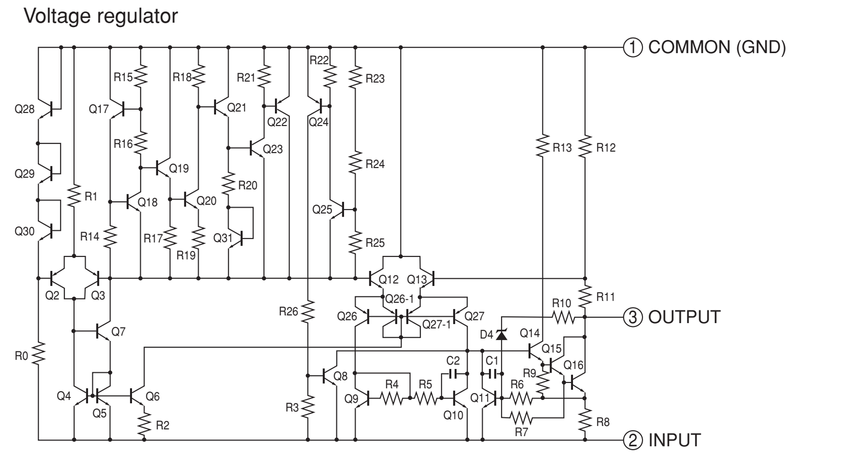
IC232: NJM2388F33
Low dropout voltage regulator with ON/OFF control



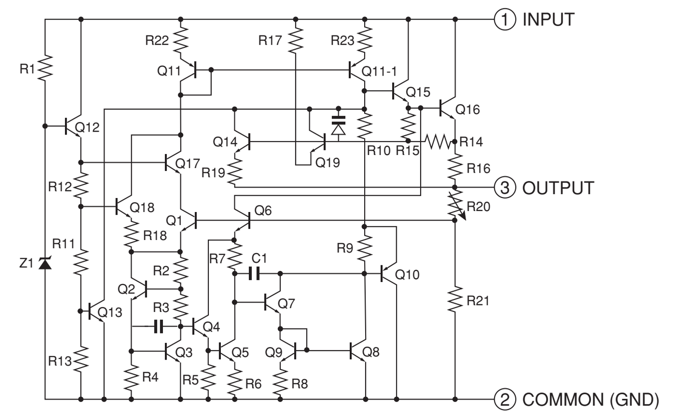
IC236: KIA7812API
Voltage regulator



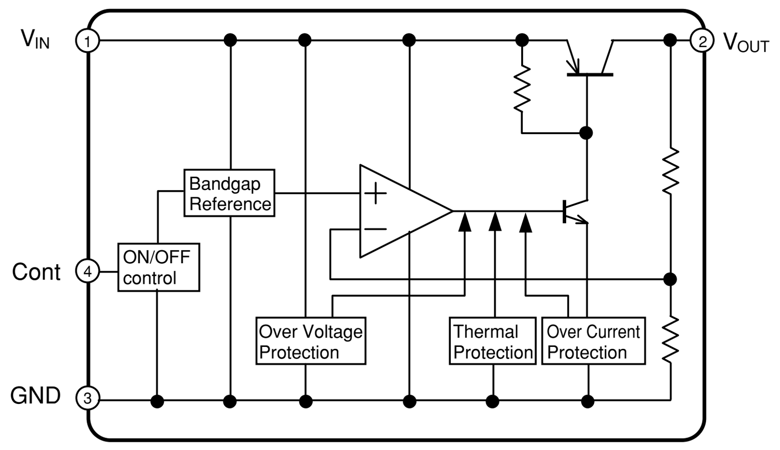
IC237: KIA7912PI
Voltage regulator



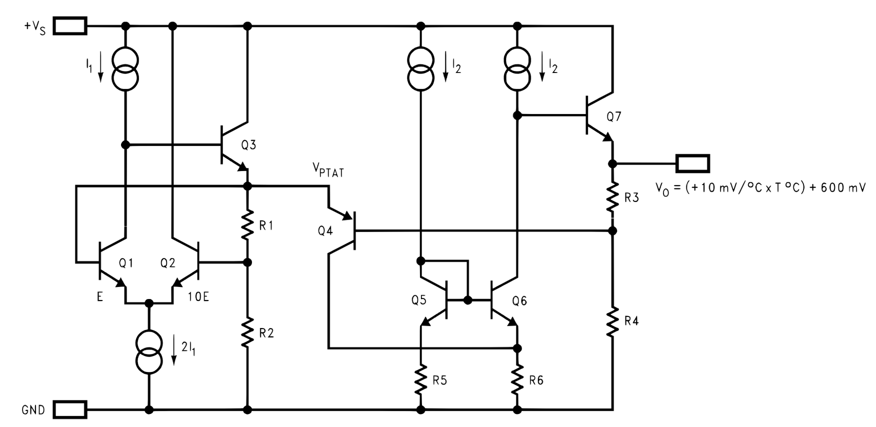
IC233, 234: KIA7805API
Voltage regulator



IC235: NJM2388F63
Low dropout voltage regulator with ON/OFF control

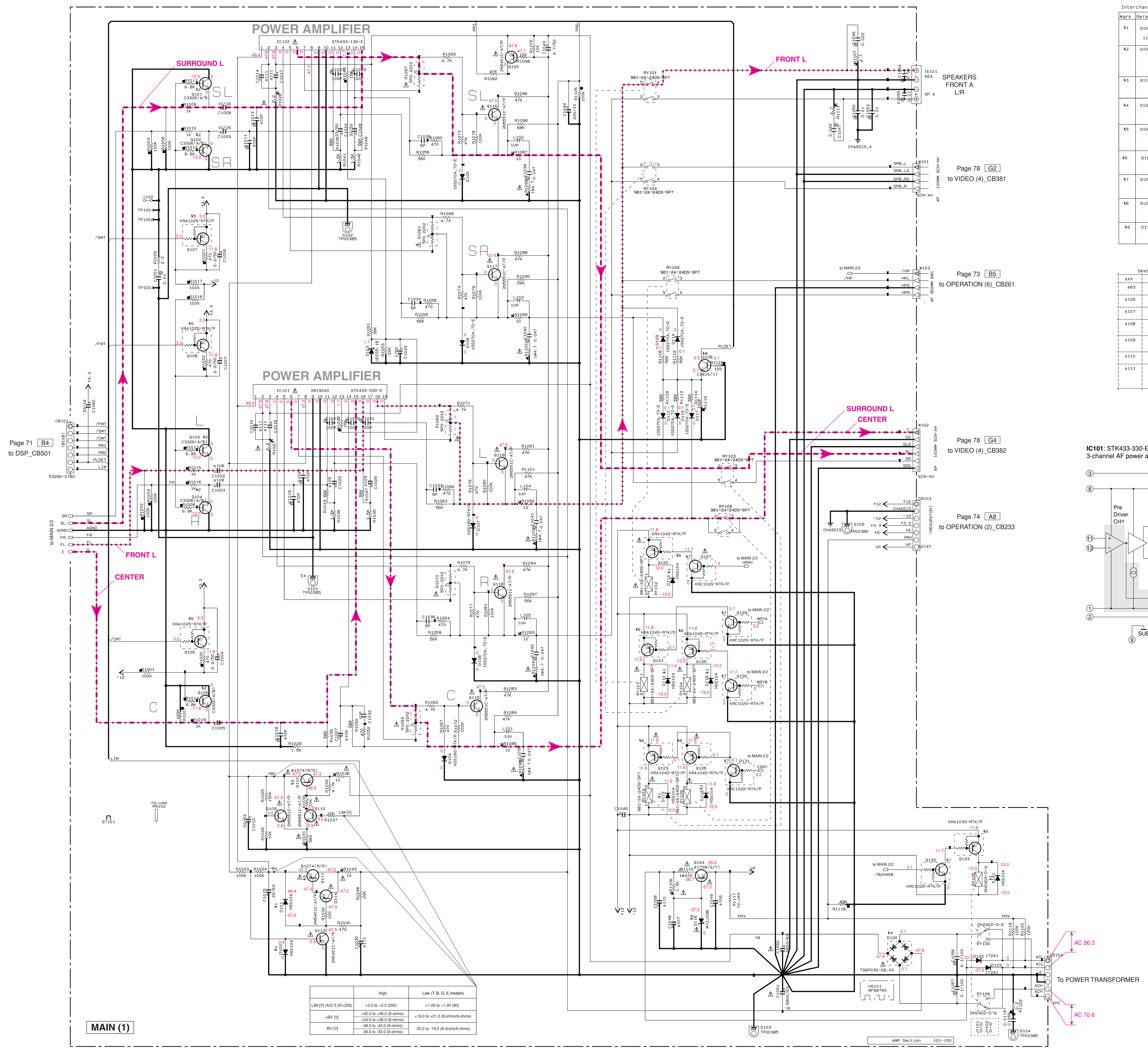


IC238: LM61CIZ
Temperature sensor



★ All voltages are measured with a 10MΩ/V DC electronic voltmeter.
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★ Schematic diagram is subject to change without notice.

MAIN 1/2



	High	Low (T, B, G, E models)
LIM [V] (A/D 3.3V=255)	+3.0 to +3.3 (255)	+1.00 to +1.20 (90)
+BV [V]	+42.0 to +48.0 (8-ohms) +33.0 to +36.0 (6-ohms)	+18.0 to +21.0 (8-ohms/6-ohms)
-BV [V]	-48.0 to -42.0 (8-ohms) -36.0 to -33.0 (6-ohms)	-22.0 to -19.0 (8-ohms/6-ohms)

Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
&1	D101, 102, 111-113 118, 119, 121	HSS104 1SS133 1SS176
&2	Q101-105	2SC3326[A/B] 2SC3326[B] 2SC5938A[A/B] 2SD1938[F]S/T 2SD2704K
&3	Q110, 111	2SB1274[R/S] 2SB1565[E/F] KTA1046-Y-U/P
&4	D120	TS6P03G-08_X0 RS603M-B-C-J80
&5	Q106-108	KRA102S-RTK/P DTA114EKA
&6	Q121-123, 125, 126, 133	KRA104S-RTK/P DTA144EKA
&7	Q127, 129-132	KRC102S-RTK/P DTC114EKA
&8	Q128	2SC1815[Y] KTC3198 Y-AT
&9	D116	MTZJ33B GDZJ33B

Destinatin Part List

sXX	LOC	T	BGE
s63	TE101	WK56080 MST-204V1-01 NC	WK56090 MST-204V1-01 WC
s106	C1045 C1049	UR85810 100/35	UR05810 100/35
s107	C1048	UR86647 4.7/50	UR06647 4.7/50
s108	C1002 C1003 C1005	UR83710 10/16	UR06710 10/50
s109	C1025 C1027 C1022	UR86733 33/50	UR06733 33/50
s110	C1058	UR86810 100/50	UR06810 100/50
s111	C1030 C1014 C1017 C1012 C1016	UR89710 10/100	UR29710 10/100

CAPACITOR

REMARKS	PARTS NAME	
NO MARK	ELECTROLYTIC CAPACITOR	
⊗	TANTALUM CAPACITOR	
NO MARK	CERAMIC CAPACITOR	
◉	CERAMIC TUBULAR CAPACITOR	
◎	POLYESTER FILM CAPACITOR	
○	POLYSTYRENE FILM CAPACITOR	
⦶	MICA CAPACITOR	
Ⓟ	POLYPROPYLENE FILM CAPACITOR	
⊜	SEMICONDUCTIVE CERAMIC CAPACITOR	
Ⓢ	POLYPHENYLENE SULFIDE FILM CAPACITOR	

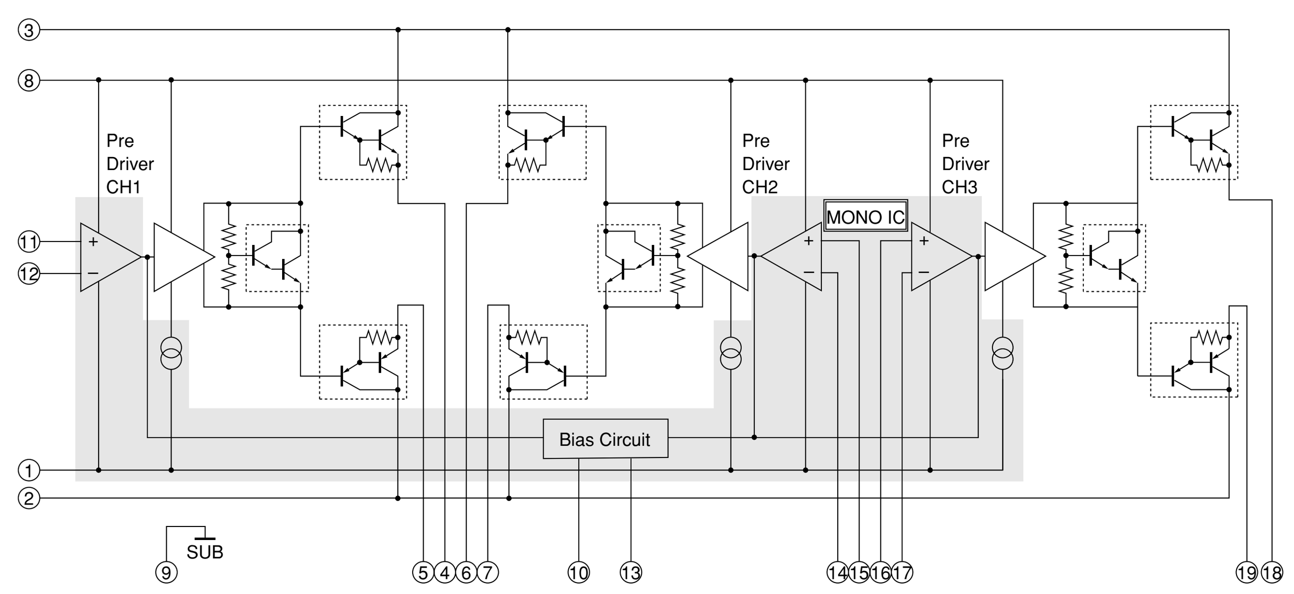
RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
⧄	CARBON FILM RESISTOR (P=10)
△	METAL OXIDE FILM RESISTOR
⚠	METAL FILM RESISTOR
⊠	METAL PLATE RESISTOR
◪	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
⊘	SEMI VARIABLE RESISTOR
▤	CHIP RESISTOR

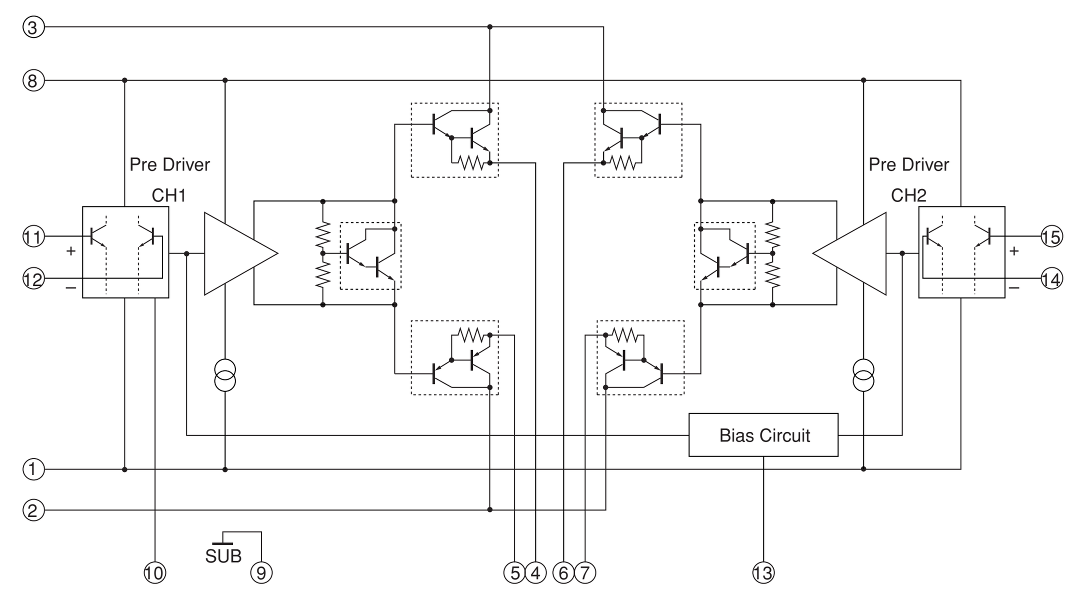
NOTICE (model)

(J)····· JAPAN
(U)····· U.S.A
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(V)····· TAIWAN

IC101: STK433-330-E
3-channel AF power amplifier, stand-by circuit built-in

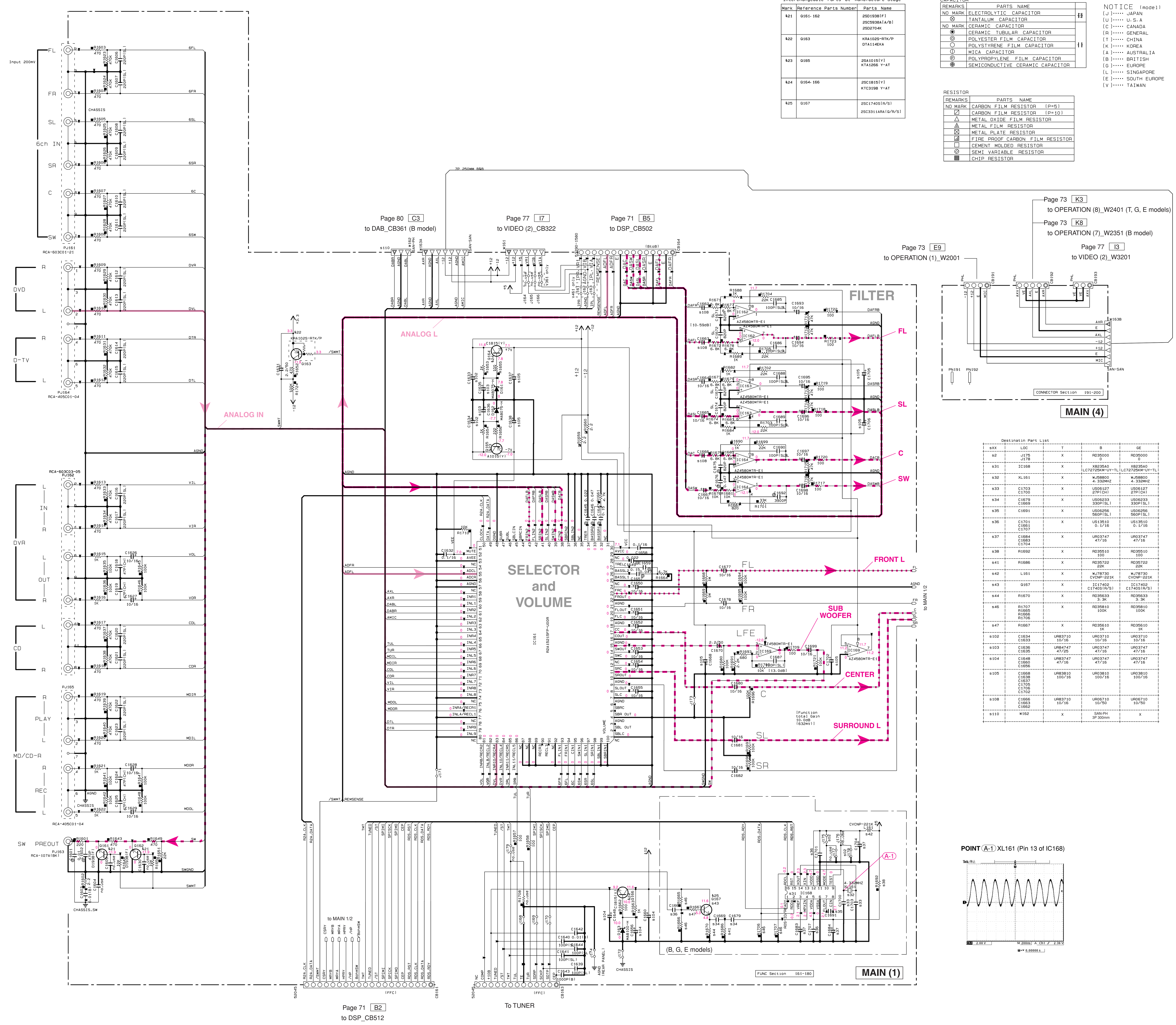


IC102: STK433-130-E
2-channel AF power amplifier, stand-by circuit built-in



★ All voltages are measured with a 10MΩ/V DC electronic voltmeter.
★ Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
★ Schematic diagram is subject to change without notice.

MAIN 2/2



Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
&21	Q161, 162	2SD1938[F] 2SC5938A[A/B] 2SD2704K
&22	Q163	KRA102S-RTK/P DTA114EKA
&23	Q165	2SA1015[Y] KTA1266 Y-AT
&24	Q164, 166	2SC1815[Y] KTC3198 Y-AT
&25	Q167	2SC1740S[R/S) 2SC3311ARA(Q/R/S]

CAPACITOR

REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
⊗	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
◉	CERAMIC TUBULAR CAPACITOR
◎	POLYESTER FILM CAPACITOR
○	POLYSTYRENE FILM CAPACITOR
⦶	MICA CAPACITOR
Ⓟ	POLYPROPYLENE FILM CAPACITOR
⊜	SEMICONDUCTIVE CERAMIC CAPACITOR

RESISTOR

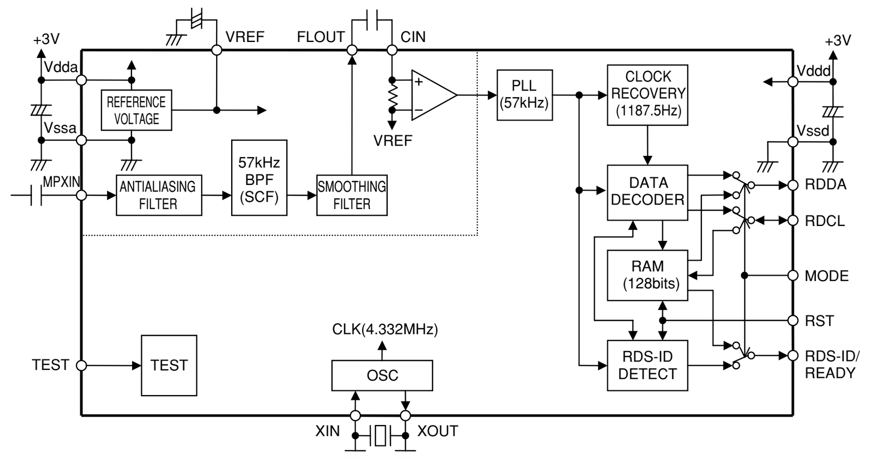
REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
⧄	CARBON FILM RESISTOR (P=10)
△	METAL OXIDE FILM RESISTOR
⚠	METAL FILM RESISTOR
⊠	METAL PLATE RESISTOR
⧄	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
⊘	SEMI VARIABLE RESISTOR
▤	CHIP RESISTOR

NOTICE (model)
(J)····· JAPAN
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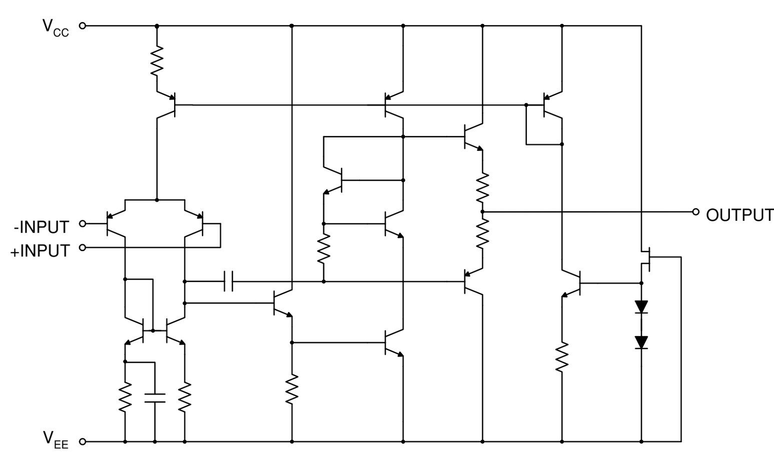
Destinatin Part List

sXX	LOC	T	B	GE
s2	J175 J178	X	RD35000 0	RD35000 0
s31	IC168	X	X8235A0 LC72725KM-UY-TL	X8235A0 LC72725KM-UY-TL
s32	XL161	X	WJ58800 4.332MHZ	WJ58800 4.332MHZ
s33	C1703 C1700	X	US06127 27P(CH)	US06127 27P(CH)
s34	C1679 C1669	X	US06233 330P(SL)	US06233 330P(SL)
s35	C1691	X	US06256 560P(SL)	US06256 560P(SL)
s36	C1701 C1661 C1707	X	US13510 0.1/16	US13510 0.1/16
s37	C1684 C1683 C1704	X	UR03747 47/16	UR03747 47/16
s38	R1692	X	RD35510 100	RD35510 100
s41	R1686	X	RD35722 22K	RD35722 22K
s42	L161	X	WJ78730 CVCNP-221K	WJ78730 CVCNP-221K
s43	Q167	X	IC17402 C1740S(R/S)	IC17402 C1740S(R/S)
s44	R1670	X	RD35633 3.3K	RD35633 3.3K
s46	R1707 R1665 R1666 R1706	X	RD35810 100K	RD35810 100K
s47	R1667	X	RD35610 1K	RD35610 1K
s102	C1634 C1633	UR83710 10/16	UR03710 10/16	UR03710 10/16
s103	C1636 C1635	UR84747 47/25	UR03747 47/16	UR03747 47/16
s104	C1648 C1660 C1656	UR83747 47/16	UR03747 47/16	UR03747 47/16
s105	C1668 C1638 C1637 C1705 C1706 C1702	UR83810 100/16	UR03810 100/16	UR03810 100/16
s108	C1666 C1663 C1662	UR83710 10/16	UR06710 10/50	UR06710 10/50
s110	W162	X	SAN-PH 3P 300mm	X

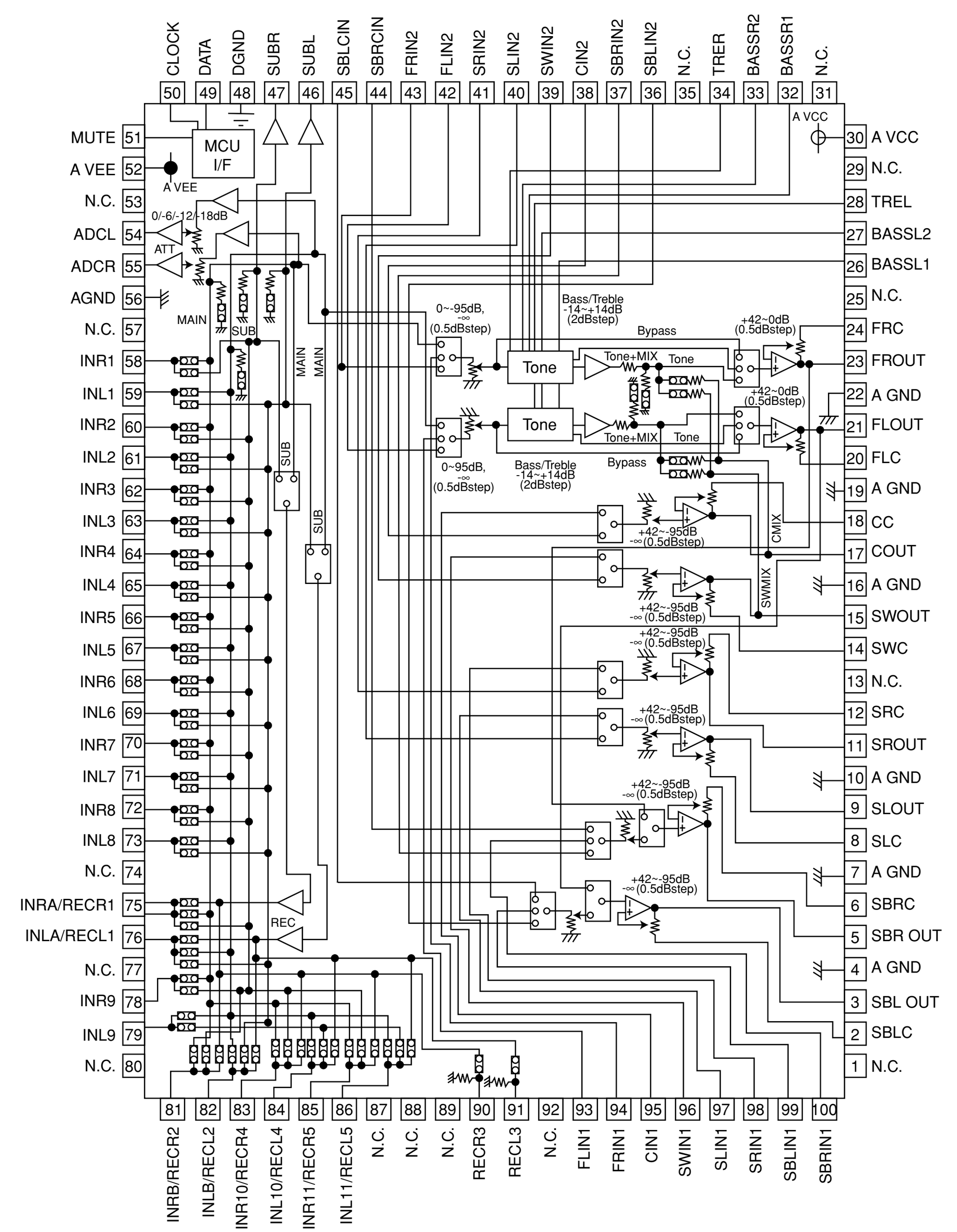
IC168: LC72725KM
RDS signal demodulation IC



IC162-164, 169: AZ4580MTR-E1
Dual low noise operational amplifiers

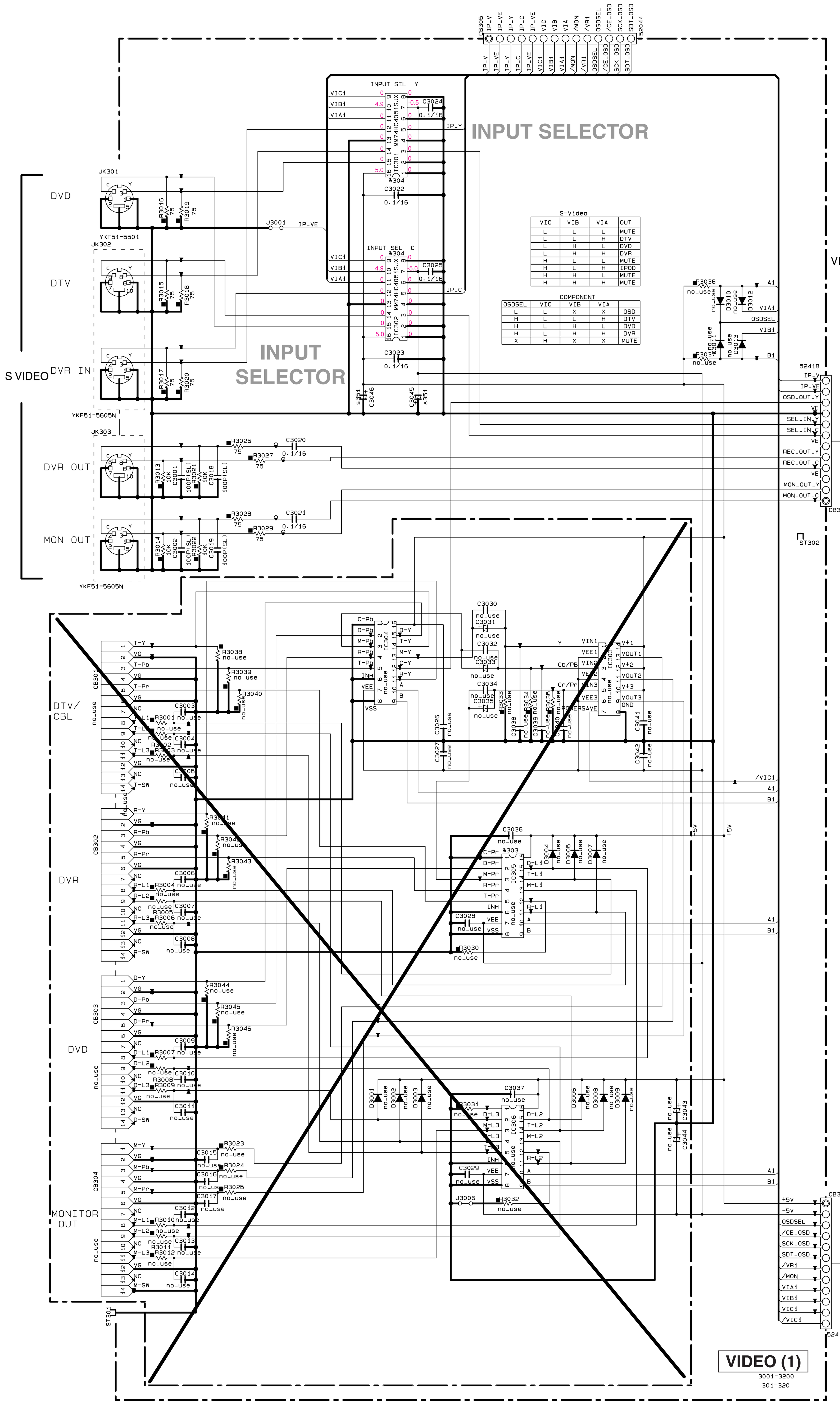


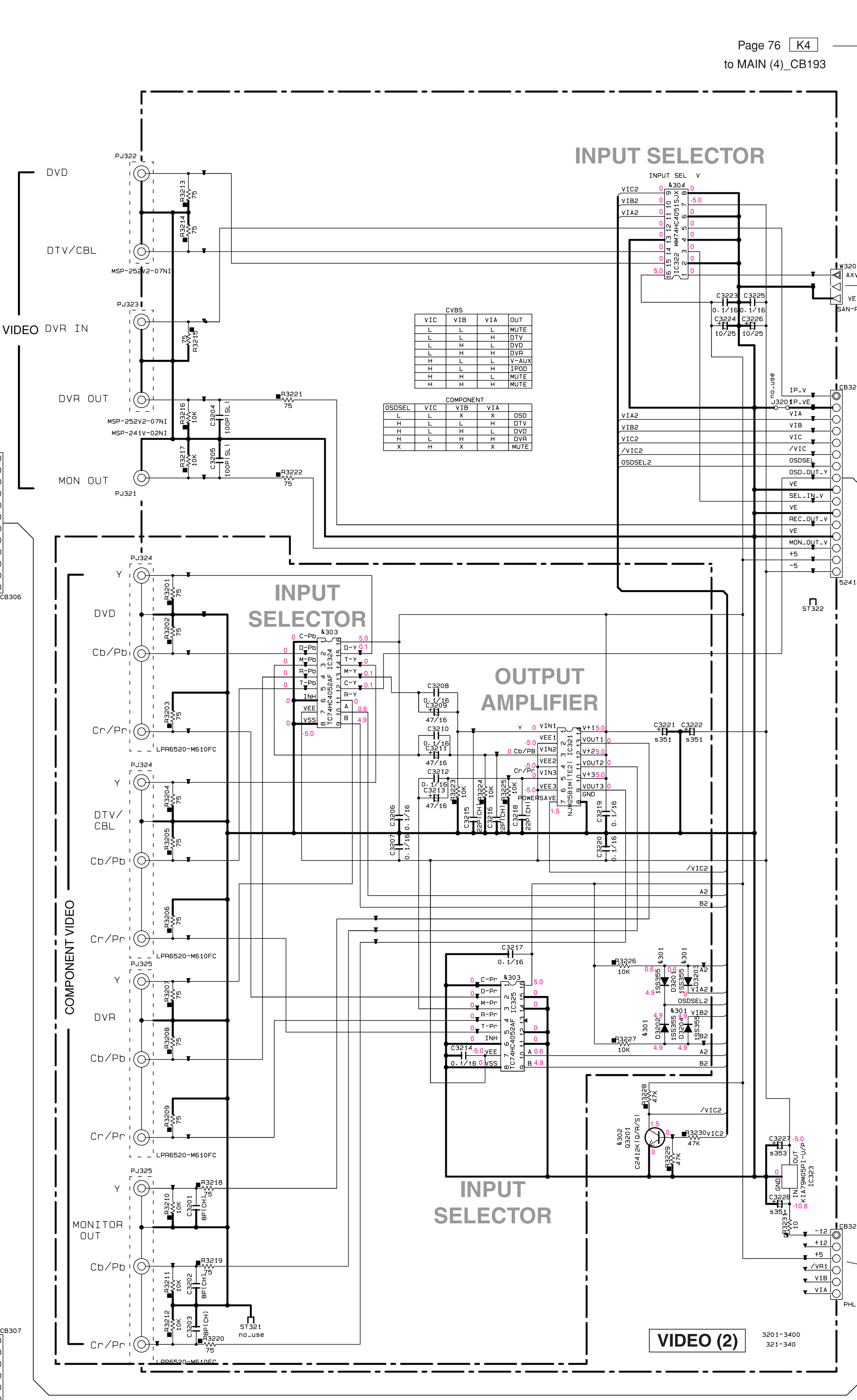
IC161: R2A15215FP
8-channel electronic volume with 11 input selector and tone control



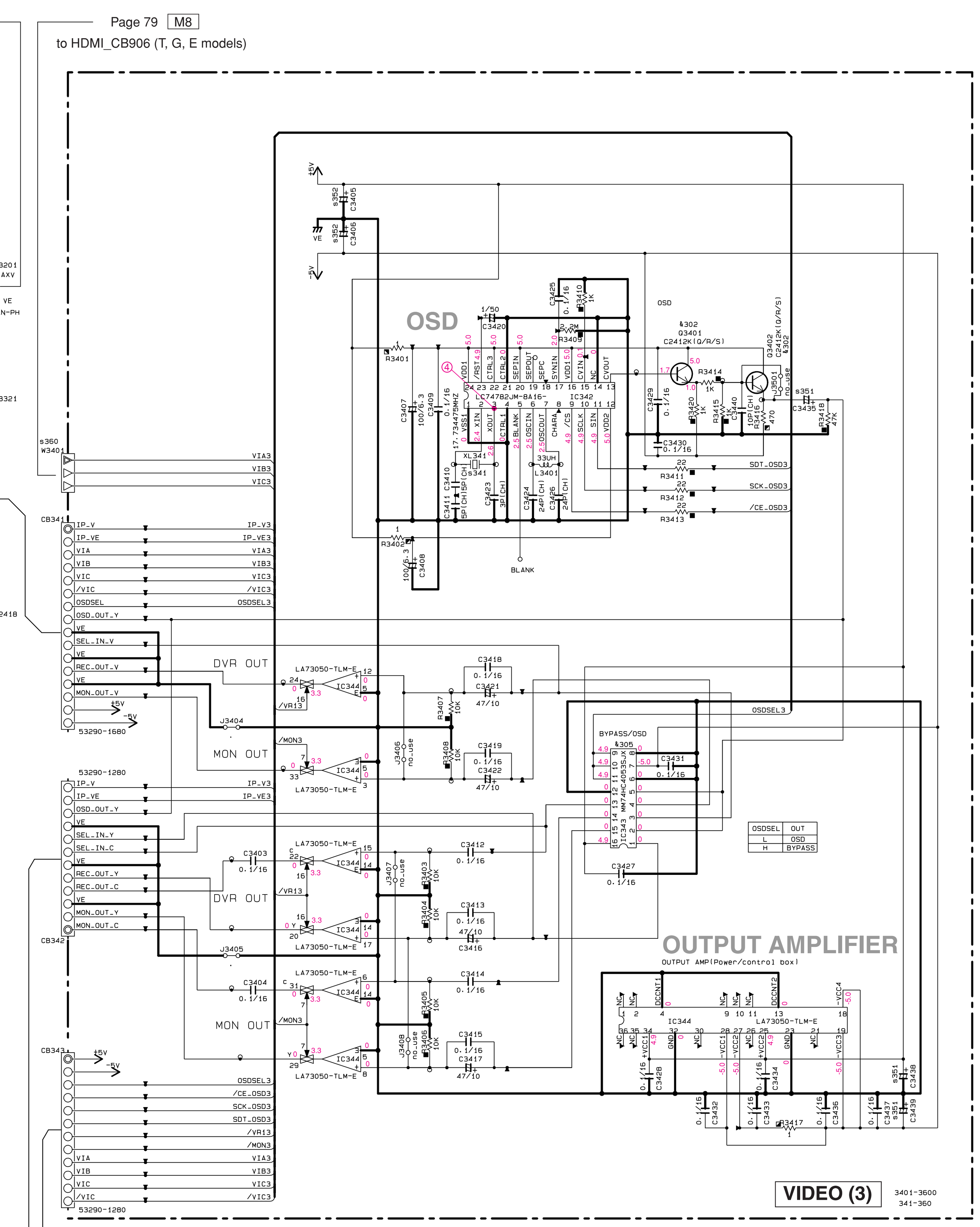
★ All voltages are measured with a 10MΩ/V DC electronic voltmeter.
★ Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
★ Schematic diagram is subject to change without notice.

VIDEO 1/2





Page 76 F3 to MAIN (1)_W161



Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
&301	D3201-3204	1SS355 MA111
&302	Q3201, 3401, 3402	2SC2412K[Q/R/S] 2SD601ARL/AQL[Q/R/S]
&303	IC324, 325	TC74HC4052AF MM74HC4052SJX_NL
&304	IC301, 302, 322	MM74HC4051SJX_NL TC74HC4051AF
&305	IC343	MM74HC4053SJX_NL TC74HC4053AF

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Destinatin Part List

sXX	LOC	T	B	GE
s351	C3435 C3228 C3439 C3221 C3046 C3222 C3045 C3438	UR83710 10/16	UR03710 10/16	UR03710 10/16
s352	C3406 C3405	UR82747 47/10	UR03747 47/16	UR03747 47/16
s353	C3227	UR83810 100/16	UR03810 100/16	UR03810 100/16
s360	W3401	MF40310 3P 100mm	X	MF40310 3P 100mm

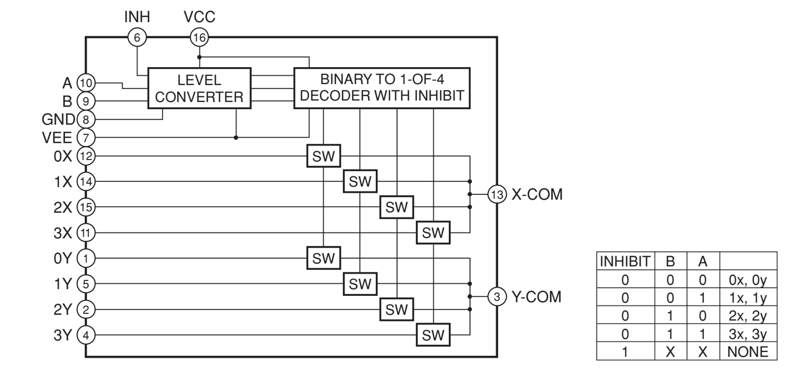
RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
◪	CARBON FILM RESISTOR (P=10)
△	METAL OXIDE FILM RESISTOR
◬	METAL FILM RESISTOR
☒	METAL PLATE RESISTOR
◪	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
⊘	SEMI VARIABLE RESISTOR
▤	CHIP RESISTOR

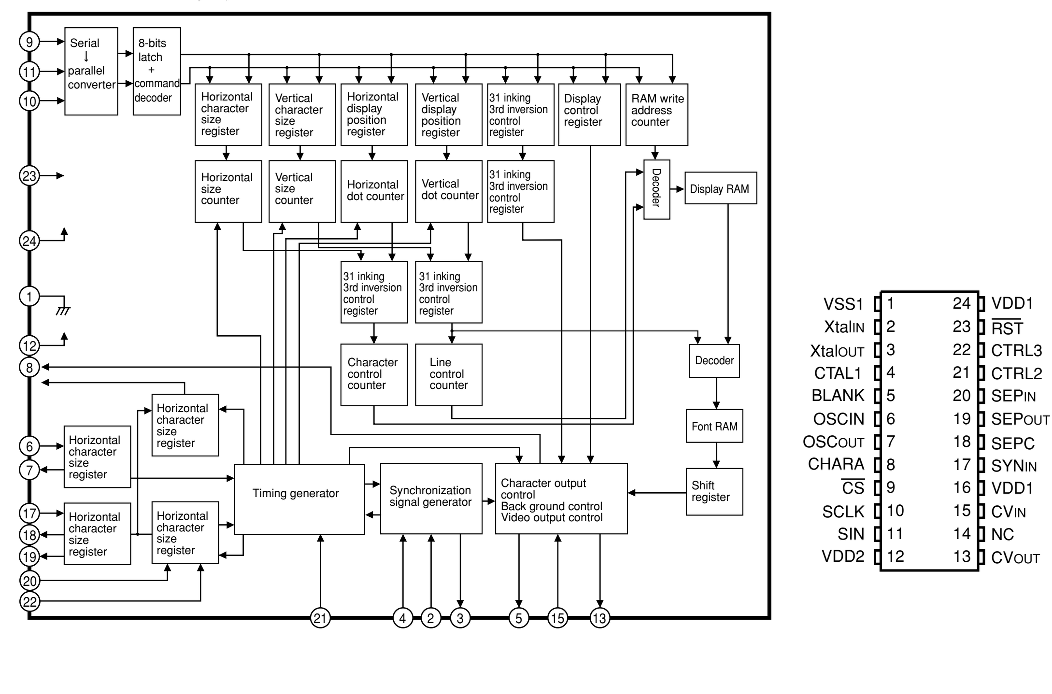
CAPACITOR

REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
⊗	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
⊙	CERAMIC TUBULAR CAPACITOR
◎	POLYESTER FILM CAPACITOR
○	POLYSTYRENE FILM CAPACITOR
⦶	MICA CAPACITOR
Ⓟ	POLYPROPYLENE FILM CAPACITOR
⊜	SEMICONDUCTIVE CERAMIC CAPACITOR

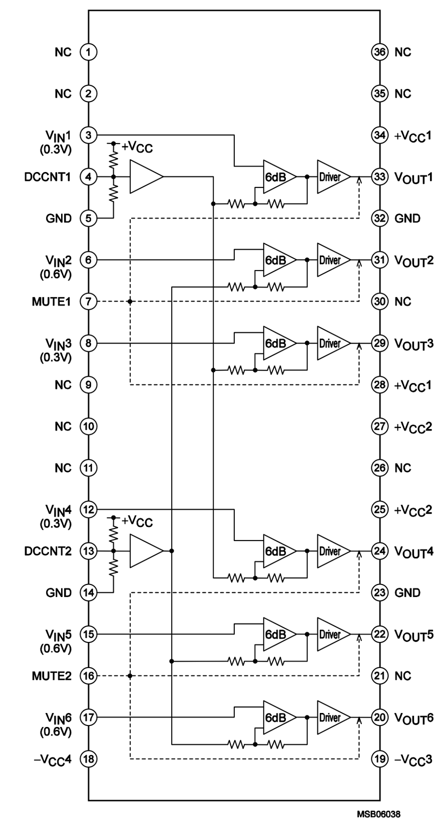
IC324, 325: TC74HC4052AF
Analog multiplexer/demultiplexer



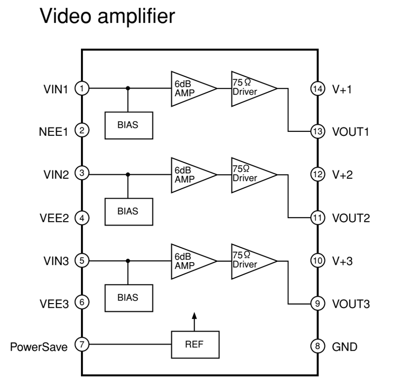
IC342: LC74782JM-8A16-TLM
The on-screen display controller LSI



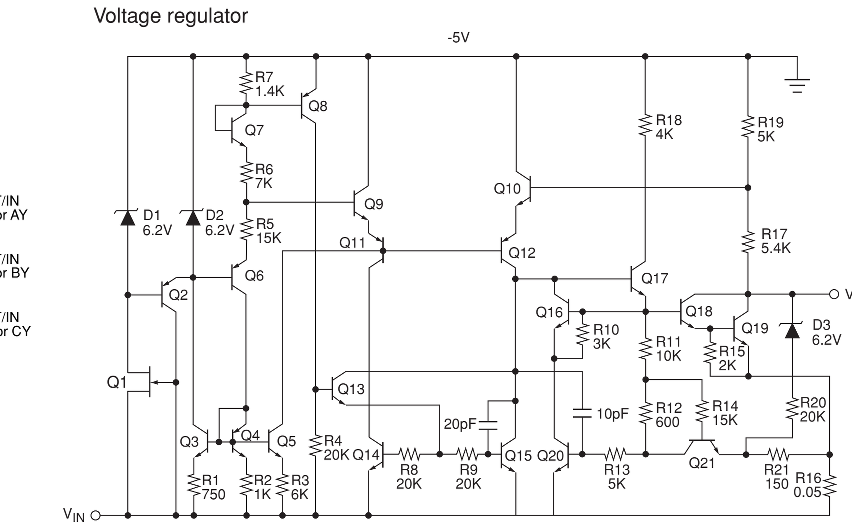
IC344: LA73050-TLM-E
6-channel 75-ohm video driver



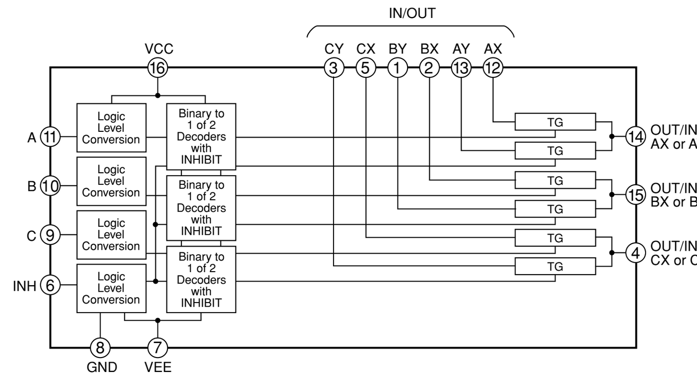
IC321: NJM2581M
Video amplifier



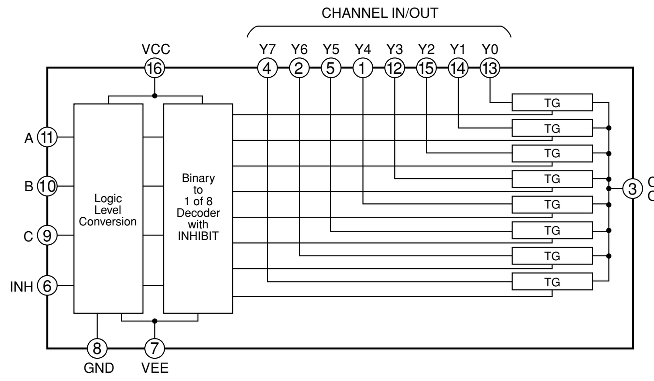
IC323: KIA79M05PI-U
Voltage regulator



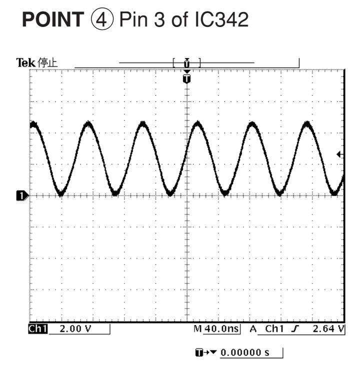
IC343: MM74HC4053SJX
Triple 2-channel analog multiplexer



IC301, 302, 322: MM74HC4051SJX
8-channel analog multiplexer



POINT ④ Pin 3 of IC342

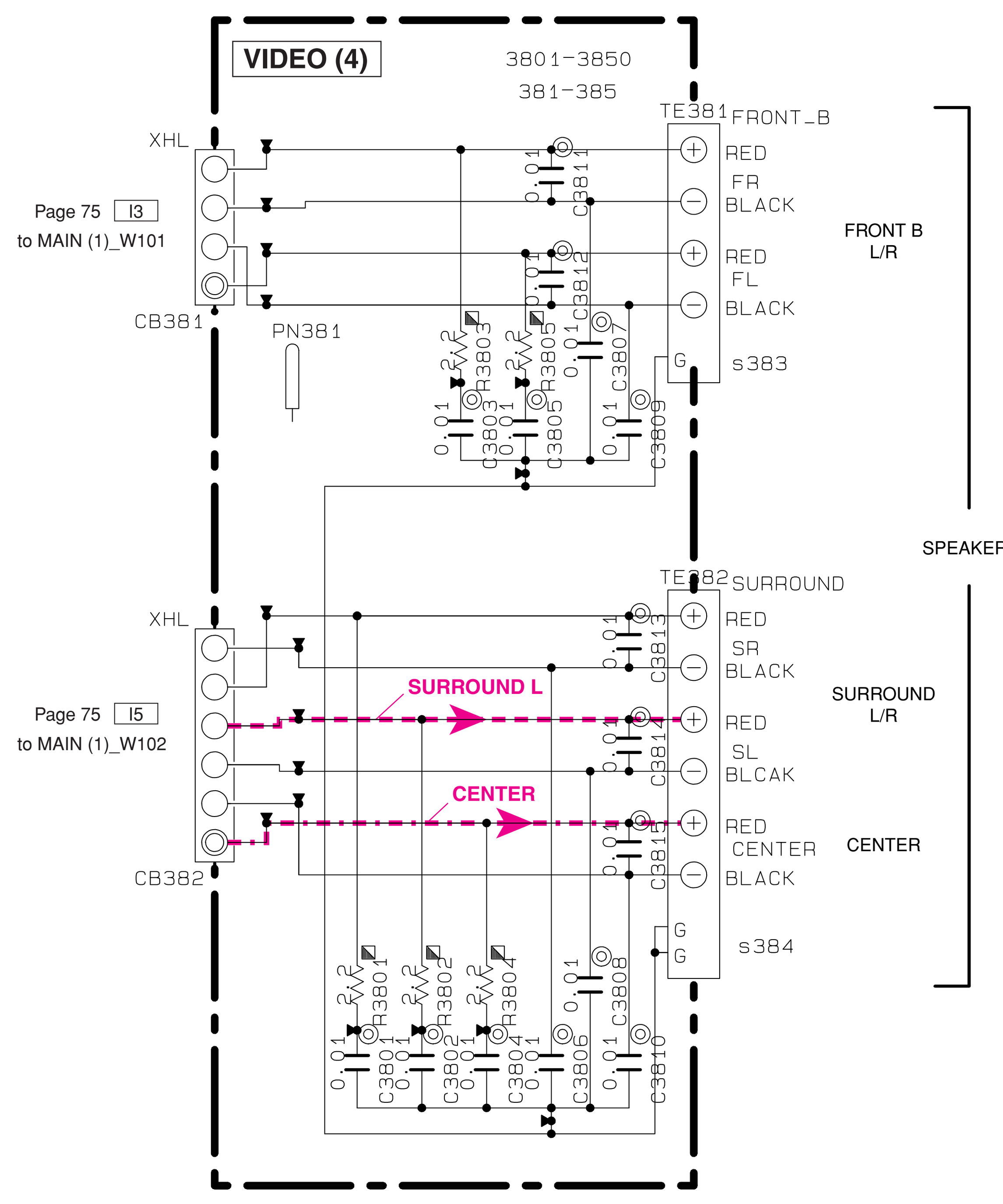


★ All voltages are measured with a 10MΩ/V DC electronic voltmeter.
★ Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
★ Schematic diagram is subject to change without notice.

VIDEO 2/2

Destinatin Part List

sXX	LOC	T	BGE
s383	TE381	WK56080 MST-204V1-01 NC	WK56090 MST-204V1-01 WC
s384	TE382	WK56100 MST-207V1-01 NC	WK56110 MST-207V1-01 WC



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RESISTOR

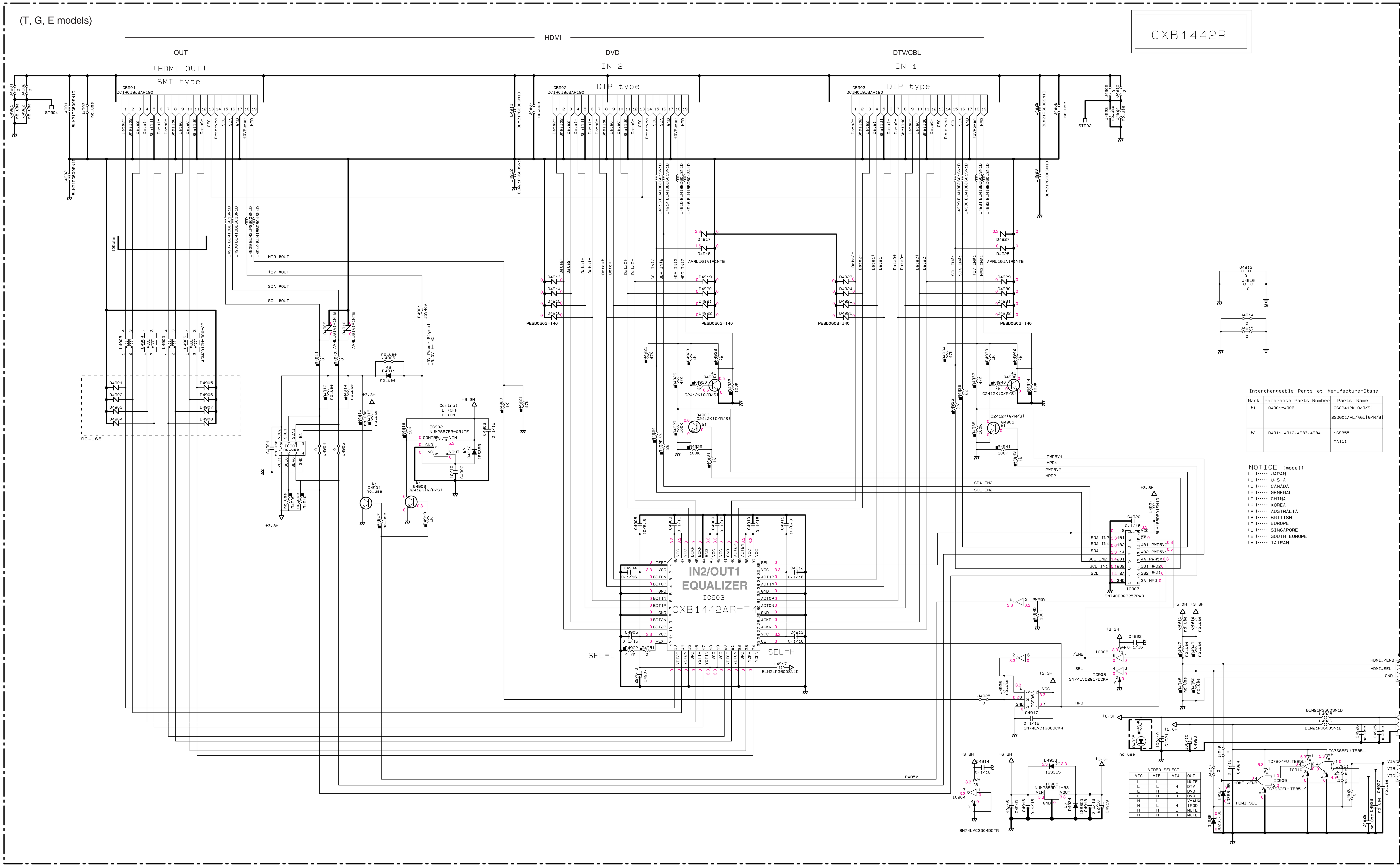
REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
◿	CARBON FILM RESISTOR (P=10)
△	METAL OXIDE FILM RESISTOR
⚠	METAL FILM RESISTOR
☒	METAL PLATE RESISTOR
◪	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
⊘	SEMI VARIABLE RESISTOR
▤	CHIP RESISTOR

CAPACITOR

REMARKS	PARTS NAME	
NO MARK	ELECTROLYTIC CAPACITOR	⊣⊢ (polarized)
⊗	TANTALUM CAPACITOR	
NO MARK	CERAMIC CAPACITOR	⊣⊢
⦿	CERAMIC TUBULAR CAPACITOR	
◎	POLYESTER FILM CAPACITOR	
○	POLYSTYRENE FILM CAPACITOR	
Ⓜ	MICA CAPACITOR	
Ⓟ	POLYPROPYLENE FILM CAPACITOR	
◉	SEMICONDUCTIVE CERAMIC CAPACITOR	

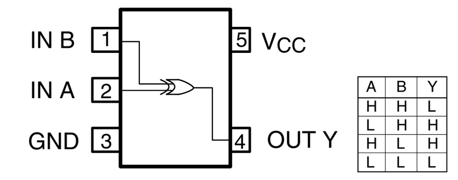
★ All voltages are measured with a 10MΩ/V DC electronic voltmeter.
★ Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
★ Schematic diagram is subject to change without notice.

HDMI

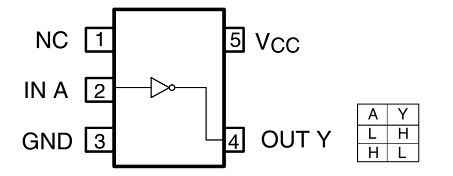


Page 74 A9 to OPERATION (2)_W2154 (T, G, E models)
Page 77 I3 to VIDEO (3)_W3401 (T, G, E models)

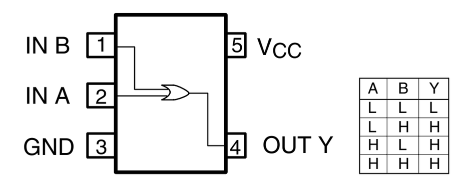
IC911: TC7S86FU
Exclusive OR gate



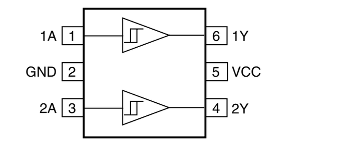
IC910: TC7S04FU
Inverter



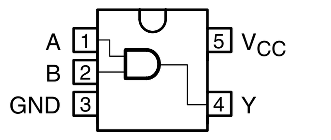
IC909: TC7S32FU
2-input OR gate



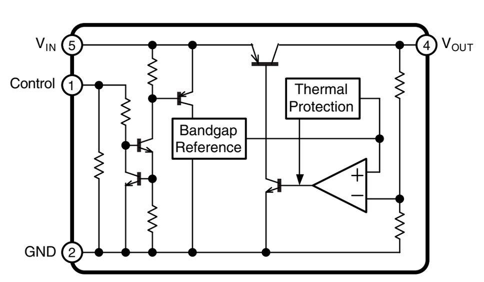
IC908: SN74LVC2G17DCKR
Dual schmitt-trigger buffer



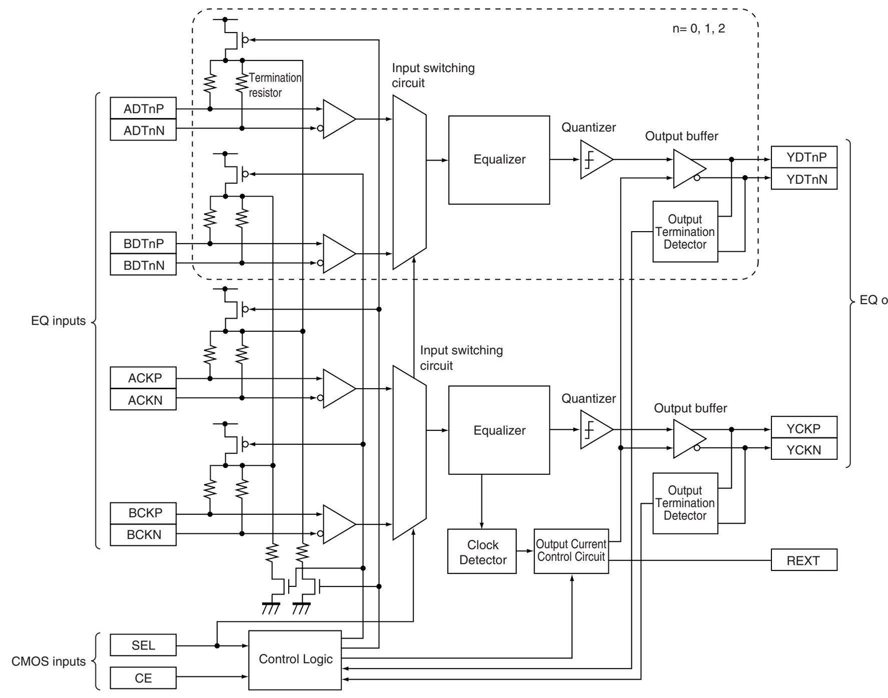
IC906: SN74LVC1G08DCKR
Single 2-input positive-AND gate

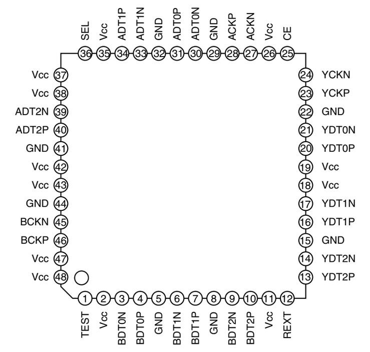


IC902: NJM2867F3-05
Low dropout voltage regulator

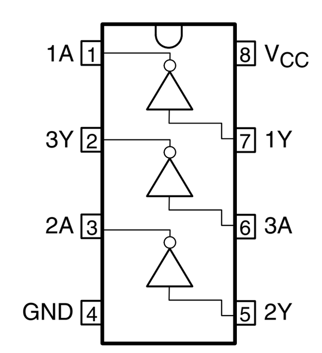


IC903: CXB1442AR-T4
Cable equalizer with 2-system switching function

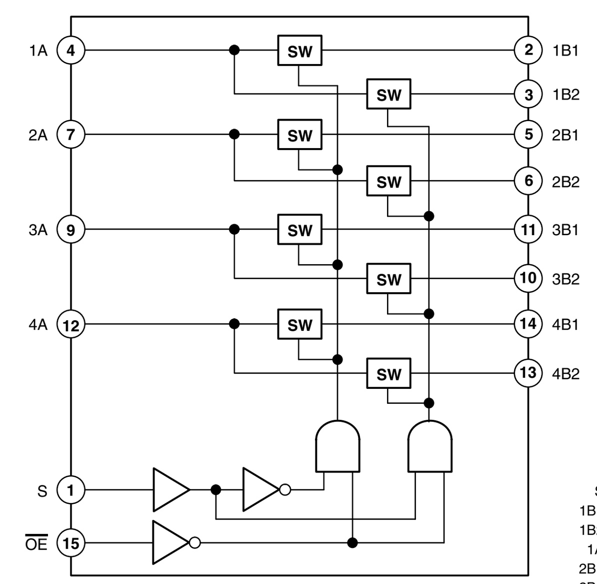




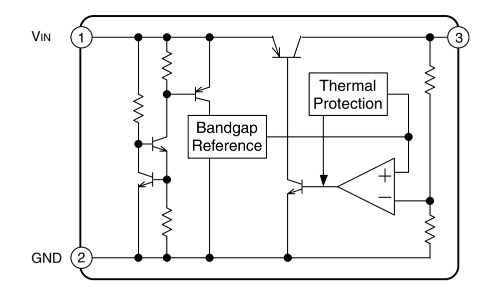
IC904: SN74LVC3G04DCTR
Triple inverter gate



IC907: SN74CB3Q3257PWR
Low boltage high-bandwidth bus switch

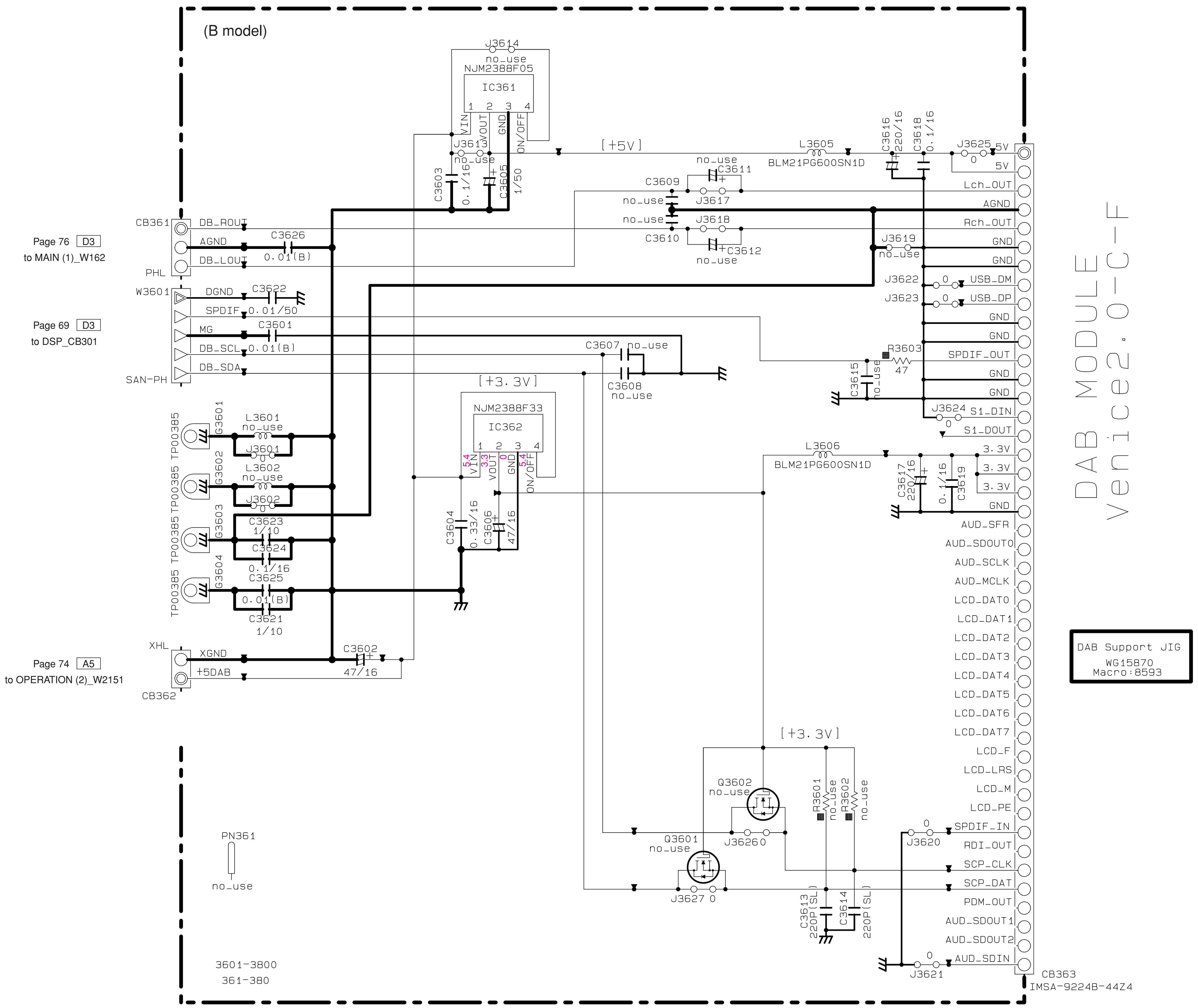


IC905: NJM2885DL1-33
Low dropout voltage regulator



★ All voltages are measured with a 10MΩ/V DC electronic voltmeter.
★ Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
★ Schematic diagram is subject to change without notice.

DAB



RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
	CARBON FILM RESISTOR (P=10)
	METAL OXIDE FILM RESISTOR
	METAL FILM RESISTOR
	METAL PLATE RESISTOR
	FIRE PROOF CARBON FILM RESISTOR
	CEMENT MOLDED RESISTOR
	SEMI VARIABLE RESISTOR
	CHIP RESISTOR

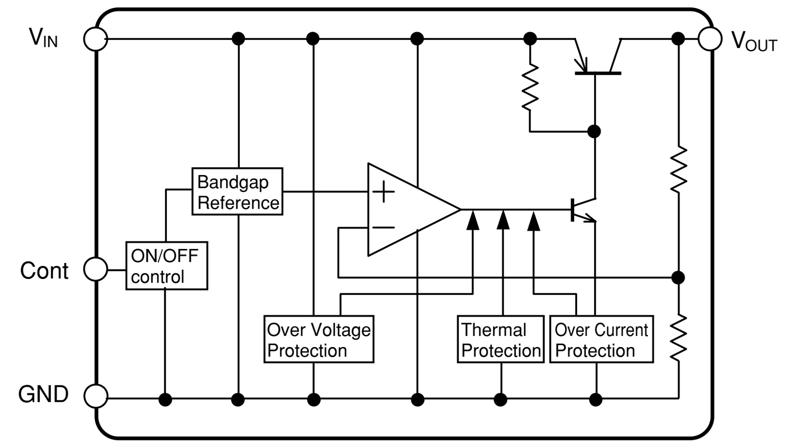
CAPACITOR

REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
	CERAMIC TUBULAR CAPACITOR
	POLYESTER FILM CAPACITOR
	POLYSTYRENE FILM CAPACITOR
	MICA CAPACITOR
	POLYPROPYLENE FILM CAPACITOR
	SEMICONDUCTIVE CERAMIC CAPACITOR

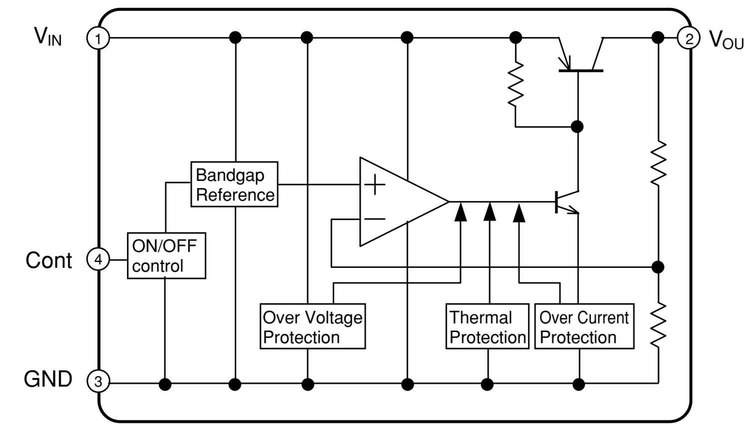
NOTICE (model)

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IC361: NJM2388F05
Low dropout voltage regulator with ON/OFF control



IC362: NJM2388F33
Low dropout voltage regulator with ON/OFF control



★ All voltages are measured with a 10MΩ/V DC electronic voltmeter.
★ Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
★ Schematic diagram is subject to change without notice.

■ REPLACEMENT PARTS LIST

• ELECTRICAL COMPONENT PARTS

WARNING

- Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
- The chip resistor is not supplied as a replacement part.
  - * When a chip resistor is necessary, use the following part.
    AAX60720: CHIP RESISTOR SAMPLE BOOK

ABBREVIATIONS IN THIS LIST ARE AS FOLLOWS:

C.A.EL.CHP : CHIP ALUMI.ELECTROLYTIC CAP
C.CE : CERAMIC CAP
C.CE.ARRAY : CERAMIC CAP ARRAY
C.CE.CHP : CHIP CERAMIC CAP
C.CE.ML : MULTILAYER CERAMIC CAP
C.CE.M.CHP : CHIP MULTILAYER CERAMIC CAP
C.CE.SAFTY : RECOGNIZED CERAMIC CAP
C.CE.TUBLR : CERAMIC TUBULAR CAP
C.CE.SMI : SEMI CONDUCTIVE CERAMIC CAP
C.EL : ELECTROLYTIC CAP
C.MICA : MICA CAP
C.ML.FLM : MULTILAYER FILM CAP
C.MP : METALLIZED PAPER CAP
C.MYLAR : MYLAR FILM CAP
C.MYLAR.ML : MULTILAYER MYLAR FILM CAP
C.PAPER : PAPER CAPACITOR
C.PLS : POLYSTYRENE FILM CAP
C.POL : POLYESTER FILM CAP
C.POLY : POLYETHYLENE FILM CAP
C.PP : POLYPROPYLENE FILM CAP
C.TNTL : TANTALUM CAP
C.TNTL.CHP : CHIP TANTALUM CAP
C.TRIM : TRIMMER CAP
CN : CONNECTOR
CN.BS.PIN : CONNECTOR,BASE PIN
CN.CANNON : CONNECTOR,CANNON
CN.DIN : CONNECTOR,DIN
CN.FLAT : CONNECTOR,FLAT CABLE
CN.POST : CONNECTOR,BASE POST
COIL.MX.AM : COIL,AM MIX
COIL.AT.FM : COIL,FM ANTENNA
COIL.DT.FM : COIL,FM DETECT
COIL.MX.FM : COIL,FM MIX
COIL,OUTPT : OUTPUT COIL
DIOD.ARRAY : DIODE ARRAY
DIODE.BRG : DIODE BRIDGE
DIODE.CHP : CHIP DIODE
DIODE.VAR : VARACTOR DIODE
DIOD.Z.CHP : CHIP ZENER DIODE
DIODE.ZENR : ZENER DIODE
DSCR.CE : CERAMIC DISCRIMINATOR
FER.BEAD : FERRITE BEADS
FER.CORE : FERRITE CORE
FET.CHP : CHIP FET
FL.DSPLY : FLUORESCENT DISPLAY
FLTR.CE : CERAMIC FILTER
FLTR.COMB : COMB FILTER MODULE
FLTR.LC.RF : LC FILTER,EMI
GND.MTL : GROUND PLATE
GND.TERM : GROUND TERMINAL
HOLDER.FUS : FUSE HOLDER
IC.PRTCT : IC PROTECTOR
JUMPER.CN : JUMPER CONNECTOR
JUMPER.TST : JUMPER,TEST POINT
L.DTCT : LIGHT DETECTING MODULE
L.EMIT : LIGHT EMITTING MODULE
LED.DSPLY : LED DISPLAY
LED.INFRD : LED,INFRARED
MODUL.RF : MODULATOR,RF
PHOT.CPL : PHOTO COUPLER
PHOT.INTR : PHOTO INTERRUPTER
PHOT.RFLCT : PHOTO REFLECTOR
PIN.TEST : PIN,TEST POINT
PLST.RIVET : PLASTIC RIVET
R.ARRAY : RESISTOR ARRAY
R.CAR. : CARBON RESISTOR
R.CAR.CHP : CHIP RESISTOR
R.CAR.FP : FLAME PROOF CARBON RESISTOR
R.FUS : FUSABLE RESISTOR
R.MTL.CHP : CHIP METAL FILM RESISTOR
R.MTL.FLM : METAL FILM RESISTOR
R.MTL.OXD : METAL OXIDE FILM RESISTOR
R.MTL.PLAT : METAL PLATE RESISTOR
RSNR.CE : CERAMIC RESONATOR
RSNR.CRYS : CRYSTAL RESONATOR
R.TW.CEM : TWIN CEMENT FIXED RESISTOR
R.CEMENT : CEMENT RESISTOR
SCR.BND.HD : BIND HEAD B-TIGHT SCREW
SCR.BW.HD : BW HEAD TAPPING SCREW
SCR.CUP : CUP TIGHT SCREW
SCR.TERM : SCREW TERMINAL
SCR.TR : SCREW,TRANSISTOR
SUPRT.PCB : SUPPORT,P.C.B.
SURG.PRTCT : SURGE PROTECTOR
SW.TACT : TACT SWITCH
SW.LEAF : LEAF SWITCH
SW.LEVER : LEVER SWITCH
SW.MICRO : MICRO SWITCH
SW.PUSH : PUSH SWITCH
SW.RT.ENC : ROTARY ENCODER
SW.RT.MTR : ROTARY SWITCH WITH MOTOR
SW.RT : ROTARY SWITCH
SW.SLIDE : SLIDE SWITCH
TERM.SP : SPEAKER TERMINAL
TERM.WRAP : WRAPPING TERMINAL
THRMST.CHP : CHIP THERMISTOR
TR.CHP : CHIP TRANSISTOR
TR.DGT : DIGITAL TRANSISTOR
TR.DGT.CHP : CHIP DIGITAL TRANSISTOR
TRANS : TRANSFORMER
TRANS.PULS : PULSE TRANSFORMER
TRANS.PWR : POWER TRANSFORMER ASS'Y
TUNER.AM : TUNER PACK,AM
TUNER.FM : TUNER PACK,FM
TUNER.PK : FRONT-ENDTUNER PACK
VR : ROTARY POTENTIOMETER
VR.MTR : POTENTIOMETER WITH MOTOR
VR.SW : POTENTIOMETER WITH ROTARY SW
VR.SLIDE : SLIDE POTENTIOMETER
VR.TRIM : TRIMMER POTENTIOMETER

P.C.B. DSP

	Ref. No.	Part No.	Description			Markets
*		WK038500	P.C.B.	DSP		T
*		WK038700	P.C.B.	DSP		B
*		WK038600	P.C.B.	DSP		GE
	CB301	VB390100	CN.BS.PIN	5P		B
	CB408	VF982300	CN.BS.PIN	17P		
	CB501	VQ961000	CN.BS.PIN	7P		
	CB502	VQ961800	CN.BS.PIN	15P		
	CB504	VN394900	CN.BS.PIN	14P		
	CB512	VQ047500	CN.BS.PIN	20P		
	CB516	VK025700	CN.BS.PIN	13P		
	CB603	VB858500	CN.BS.PIN	6P		
	C101	UR838220	C.EL	220uF	16V	T
	C101	UR238220	C.EL	220uF	16V	BGE
	C102	WH771300	C.EL	100uF	10V	
	C103-104	US135100	C.CE.CHP	0.1uF	16V	
	C105	US061270	C.CE.CHP	27pF	50V B	
	C106	WH771300	C.EL	100uF	10V	
	C107	US135100	C.CE.CHP	0.1uF	16V	
	C108-129	US063100	C.CE.CHP	1000pF	50V B	
	C130	US135100	C.CE.CHP	0.1uF	16V	
	C131	US061270	C.CE.CHP	27pF	50V B	
	C132	UR837100	C.EL	10uF	16V	T
	C132	UR037100	C.EL	10uF	16V	BGE
	C133	US063100	C.CE.CHP	1000pF	50V B	
	C135	UB446100	C.CE.CHP	1uF	16V	
	C136-147	US063100	C.CE.CHP	1000pF	50V B	
	C148-154	UB446100	C.CE.CHP	1uF	16V	
	C201-206	US063100	C.CE.CHP	1000pF	50V B	
	C207-211	US135100	C.CE.CHP	0.1uF	16V	
	C212	US063100	C.CE.CHP	1000pF	50V B	
	C213	US135100	C.CE.CHP	0.1uF	16V	
	C214	US064100	C.CE.CHP	0.01uF	50V B	
	C215-218	UB446100	C.CE.CHP	1uF	16V	
	C301-304	US135100	C.CE.CHP	0.1uF	16V	
	C305	UR837470	C.EL	47uF	16V	T
	C305	UU238100	C.EL	100uF	16V	BGE
	C306	US135100	C.CE.CHP	0.1uF	16V	
	C307	US063100	C.CE.CHP	1000pF	50V B	
	C308	UR837100	C.EL	10uF	16V	T
	C308	UR037100	C.EL	10uF	16V	BGE
	C309-310	US061270	C.CE.CHP	27pF	50V B	
	C311	UR866220	C.EL	2.2uF	50V	
	C312	US135100	C.CE.CHP	0.1uF	16V	
	C313	US061220	C.CE.CHP	22pF	50V B	
	C314	UR847220	C.EL	22uF	25V	T
	C314	UR247220	C.EL	22uF	25V	BGE
	C315-318	US135100	C.CE.CHP	0.1uF	16V	
	C321	US135100	C.CE.CHP	0.1uF	16V	
	C342-346	US063100	C.CE.CHP	1000pF	50V B	
	C349	UR837100	C.EL	10uF	16V	T
	C349	UR037100	C.EL	10uF	16V	BGE
	C350	UR837100	C.EL	10uF	16V	T
	C350	UR037100	C.EL	10uF	16V	BGE
	C351-352	US063100	C.CE.CHP	1000pF	50V B	
	C354	US063100	C.CE.CHP	1000pF	50V B	
	C401-402	US135100	C.CE.CHP	0.1uF	16V	
	C404	UR837470	C.EL	47uF	16V	T
	C404	UR037470	C.EL	47uF	16V	BGE
	C405	US135100	C.CE.CHP	0.1uF	16V	
	C406	UB446100	C.CE.CHP	1uF	16V	

* New Parts

	Ref. No.	Part No.	Description			Markets
	C407-408	US062100	C.CE.CHP	100pF	50V B	
	C409	US135100	C.CE.CHP	0.1uF	16V	
	C410	US062100	C.CE.CHP	100pF	50V B	
	C413-416	US063100	C.CE.CHP	1000pF	50V B	
	C417	US062470	C.CE.CHP	470pF	50V B	
	C418-423	US063100	C.CE.CHP	1000pF	50V B	
	C424	US135100	C.CE.CHP	0.1uF	16V	
	C425-428	US063100	C.CE.CHP	1000pF	50V B	
	C429-435	US062100	C.CE.CHP	100pF	50V B	
	C501	US062100	C.CE.CHP	100pF	50V B	
	C502	UR838220	C.EL	220uF	16V	T
	C502	UR238220	C.EL	220uF	16V	BGE
	C503-504	US062100	C.CE.CHP	100pF	50V B	
	C513-515	US062100	C.CE.CHP	100pF	50V B	
	C516	US035100	C.CE.CHP	0.1uF	16V B	
	C517-518	US062100	C.CE.CHP	100pF	50V B	
	C519	US135100	C.CE.CHP	0.1uF	16V	
	C520	US035100	C.CE.CHP	0.1uF	16V B	
	C521	US063100	C.CE.CHP	1000pF	50V B	
	C522-523	US135100	C.CE.CHP	0.1uF	16V	
	C524-525	US063100	C.CE.CHP	1000pF	50V B	
	C527-528	US064100	C.CE.CHP	0.01uF	50V B	
	C529	US062100	C.CE.CHP	100pF	50V B	
	C530	US064100	C.CE.CHP	0.01uF	50V B	
	C531-534	US062100	C.CE.CHP	100pF	50V B	
	C535	US064100	C.CE.CHP	0.01uF	50V B	
	C536-549	US062100	C.CE.CHP	100pF	50V B	
	C550	US064100	C.CE.CHP	0.01uF	50V B	
	C601	US135100	C.CE.CHP	0.1uF	16V	TGE
	C602	US064100	C.CE.CHP	0.01uF	50V B	TGE
	C603-608	US062220	C.CE.CHP	220pF	50V B	B
	C609	UA064100	C.CE.CHP	0.01uF	50V	TGE
	C609	US135100	C.CE.CHP	0.1uF	16V	B
	C610	US061150	C.CE.CHP	15pF	50V B	TGE
	C611	US061120	C.CE.CHP	12pF	50V B	TGE
	C612-613	US061470	C.CE.CHP	47pF	50V B	TGE
	C614-615	US135100	C.CE.CHP	0.1uF	16V	TGE
	C616	UB446100	C.CE.CHP	1uF	16V	TGE
	C617	US135100	C.CE.CHP	0.1uF	16V	TGE
	C618	UR838100	C.EL	100uF	16V	TGE
	C619-621	US135100	C.CE.CHP	0.1uF	16V	TGE
	C623	US063100	C.CE.CHP	1000pF	50V B	
	C624	US135100	C.CE.CHP	0.1uF	16V	TGE
	C625	US063100	C.CE.CHP	1000pF	50V B	B
	C626	US064100	C.CE.CHP	0.01uF	50V B	B
	C627-628	UB446100	C.CE.CHP	1uF	16V	TGE
	C630	US063100	C.CE.CHP	1000pF	50V B	
	D101	VS597600	DIODE.CHP	RB160L-40 TE25		
	D401	VU171400	DIODE.ZENR	UDZS3.3BTE-17 3.3V		
	D402	VU171400	DIODE.ZENR	UDZS3.3BTE-17 3.3V		BGE
	D403-404	VU171400	DIODE.ZENR	UDZS3.3BTE-17 3.3V		
	D405	VT332900	DIODE	1SS355		
	D407	VT332900	DIODE	1SS355		
	D408-409	VU171400	DIODE.ZENR	UDZS3.3BTE-17 3.3V		
	D602	VT332900	DIODE	1SS355		B
	G101	WB438000	TERM.GND	M4 SD00433-21		
	IC101	X7534A00	IC.CPU	ADSP-BF531 CPU		
	IC102	X8653A00	IC	BR25L320F-W EEPROM		
*	IC201	X9060C00	IC	S29AL016D70TFI020		boot only
*	IC202	X5665B00	IC	W9864G6EH-7 SDRAM		

* New Parts

RX-V461/HTR-6040/RX-V461DAB

P.C.B. DSP and P.C.B. OPERATION

	Ref. No.	Part No.	Description		Markets
	IC203	X4201A00	IC	SN74AHC02PWR	
	IC204-207	X4285A00	IC	SN74LV573APWR	
	IC208	X2713A00	IC	SN74AHC08PWR	
	IC301	X7919A00	IC	AK4588VQ	
	IC302	X6123A00	IC	SN74LV157APWR	
	IC305	X3936A00	IC	SN74LVU04APWR	
	IC401	X6905A00	IC	ADC084S021CIMM	
	IC402-403	X5875A00	IC	SN74LV4051APWR	
	IC404	X2709A00	IC	SN74AHCT245PWR	
	IC501	X3824A00	IC	SN74AHCT08PWR	
	IC505	X4463A00	IC	SN74LV08APWR	
*	IC601	X8256A00	IC	ISP1362BD USB	TGE
	IC602	X4107A00	IC	MIC2026-2BM	TGE
	IC603	XY417A00	IC	SN74CBTLV16210GR	TGE
	IC604	X6068A00	IC	TC7SZ08FU AND GATE	TGE
	PJ301	V8795700	JACK.PIN	1P	
	Q101	WE736300	FET	RTQ040P02	
	Q501	WE736300	FET	RTQ040P02	
	U301-302	WJ625100	CN.PHOTO.R	1P JSR1151-D	
	XL101	VZ540700	RSNR.CRYS	25MHz SMD-49	
	XL301	WJ625200	RSNR.CRYS	24.576MHz	
*	XL601	WK878400	RSNR.CRYS	12MHz DSX530GA	TGE
*		WK038800	P.C.B.	OPERATION	T
*		WK039100	P.C.B.	OPERATION	B
*		WK038900	P.C.B.	OPERATION	GE
	CB202	VF982300	CN.BS.PIN	17P	
	CB231	VK026300	CN.BS.PIN	4P	
	CB234	LB919120	CN.BS.PIN	12P	
	CB235	VK024700	CN.BS.PIN	3P	
	CB241	WG668100	CN.USB	USB 4P SE	TGE
	CB252-255	WC050700	CLIP.FUSE	EYF-52BCY	
	CB256-257	VG879900	CN.BS.PIN	2P	
	CB261	VB858300	CN.BS.PIN	4P	
	C2001	US064100	C.CE.CHP	0.01uF 50V B	
	C2002	US063100	C.CE.CHP	1000pF 50V B	
	C2003	UM397100	C.EL	10uF 16V	
	C2004	US062100	C.CE.CHP	100pF 50V B	
	C2005	UM387470	C.EL	47uF 16V	
	C2006	US135100	C.CE.CHP	0.1uF 16V	
	C2007	US061330	C.CE.CHP	33pF 50V B	
	C2008	UM397220	C.EL	22uF 25V	
	C2009	UM397100	C.EL	10uF 16V	
	C2010-2011	UM397220	C.EL	22uF 25V	
	C2012	US065100	C.CE.CHP	0.1uF 50V B	
	C2013-2014	US135100	C.CE.CHP	0.1uF 16V	
	C2015	UR868100	C.EL	100uF 50V	T
	C2015	UR068100	C.EL	100uF 50V	BGE
	C2016	UM388330	C.EL	330uF 6.3V	
	C2017	US135100	C.CE.CHP	0.1uF 16V	
	C2018	US061680	C.CE.CHP	68pF 50V B	
	C2019-2020	US062100	C.CE.CHP	100pF 50V B	
	C2021	US061100	C.CE.CHP	10pF 50V B	
	C2022-2024	US135100	C.CE.CHP	0.1uF 16V	
	C2025	US064100	C.CE.CHP	0.01uF 50V B	
	C2026	US135100	C.CE.CHP	0.1uF 16V	
	C2027	UM397100	C.EL	10uF 16V	
	C2028	US135100	C.CE.CHP	0.1uF 16V	

✻ New Parts

	Ref. No.	Part No.	Description		Markets
	C2029-2030	US063100	C.CE.CHP	1000pF 50V B	
	C2101	US064100	C.CE.CHP	0.01uF 50V B	
	C2102-2105	US044220	C.CE.CHP	0.022uF 25V B	
	C2110-2111	US063100	C.CE.CHP	1000pF 50V B	
	C2152	UR866100	C.EL	1uF 50V	
	C2153	UR837470	C.EL	47uF 16V	
	C2155	US135100	C.CE.CHP	0.1uF 16V	
	C2156	US064100	C.CE.CHP	0.01uF 50V B	
	C2157	US135100	C.CE.CHP	0.1uF 16V	
	C2158	UR866100	C.EL	1uF 50V	
	C2160	UR866100	C.EL	1uF 50V	
	C2161	US135100	C.CE.CHP	0.1uF 16V	
	C2162	UR866100	C.EL	1uF 50V	
	C2163	UR837470	C.EL	47uF 16V	
	C2164	UR837100	C.EL	10uF 16V	
	C2165-2167	US135100	C.CE.CHP	0.1uF 16V	
	C2168-2170	UR866100	C.EL	1uF 50V	
	C2171	UR73A100	C.EL	10000uF 16V	
	C2172-2173	UR866100	C.EL	1uF 50V	
	C2175	UR749470	C.EL	4700uF 25V	
	C2176	UR749220	C.EL	2200uF 25V	
	C2177-2178	UR73A100	C.EL	10000uF 16V	
	C2179-2180	VE326000	C.MYLAR	0.1uF 50V	
	C2181	US135100	C.CE.CHP	0.1uF 16V	
	C2182-2183	WJ605000	C.MYLAR	0.01uF 50V J	
	C2184	VE326000	C.MYLAR	0.1uF 50V	
	C2251	UR749220	C.EL	2200uF 25V	
	C2252	WJ605000	C.MYLAR	0.01uF 50V J	
	C2254	WJ605000	C.MYLAR	0.01uF 50V J	
⚠	C2257	WB121400	C.CE.SAFTY	0.01uF 295V	
	C2301-2304	WJ605000	C.MYLAR	0.01uF 50V J	
	C2351-2352	US135100	C.CE.CHP	0.1uF 16V	B
	C2353-2354	US062220	C.CE.CHP	220pF 50V B	B
	C2401-2402	US135100	C.CE.CHP	0.1uF 16V	TGE
	C2403-2404	US062220	C.CE.CHP	220pF 50V B	TGE
	C2405	US063100	C.CE.CHP	1000pF 50V B	TGE
	C2406	US062100	C.CE.CHP	100pF 50V B	TGE
	D2001	WJ249600	LED	ORANGE	
	D2002	VU171900	DIODE.ZENR	UDZ5.1B 5.1V	
	D2003	WJ249600	LED	ORANGE	
	D2004	VT332900	DIODE	1SS355	
	D2005	WJ249600	LED	ORANGE	
	D2006	VT332900	DIODE	1SS355	
	D2007	WJ249600	LED	ORANGE	
	D2008-2009	VU171500	DIODE.ZENR	UDZ 3.6BTE-17 3.6V	
	D2151	VT332900	DIODE	1SS355	
	D2152	VS997800	DIODE	1T2	
	D2154	VT332900	DIODE	1SS355	
	D2156	VT332900	DIODE	1SS355	
	D2157	VU171900	DIODE.ZENR	UDZ5.1B 5.1V	
	D2158	VS997800	DIODE	1T2	
	D2160	VT332900	DIODE	1SS355	
⚠	D2162-2163	WA653100	DIODE.BRG	KBP103G 1A 200V	
⚠	D2164	WJ286700	DIODE.BRG	RS403M 4A 140V	
	D2165	VU171900	DIODE.ZENR	UDZ5.1B 5.1V	
	D2166-2167	VT332900	DIODE	1SS355	
	D2168	V2376600	DIODE.SHOT	RB500V-40	
	D2251	VD631600	DIODE	1SS133,176	
⚠	D2253-2254	VS997800	DIODE	1T2	
⚠	D2256-2257	VS997800	DIODE	1T2	

✻ New Parts

P.C.B. OPERATION and P.C.B. MAIN

	Ref. No.	Part No.	Description		Markets
	D2258-2259	WC398800	DIODE	KDS160-RTK	
	D2301	VU172500	DIODE.ZENR	UDZS9.1B	
	D2302-2303	VT332900	DIODE	1SS355	
	D2351-2354	VT332900	DIODE	1SS355	B
	D2401-2404	VT332900	DIODE	1SS355	TGE
⚠	F2251	VV071700	FUSE	3.15A 250V	
⚠	F2252	VT942900	FUSE	T2.5A 250V	
	IC201	X6386A00	IC	M66003-0131FP	
	IC202	X8302A00	IC	AZ4580MTR-E1 OPAMP	
⚠	IC232	X6248A00	IC	NJM2388F33	
⚠	IC233-234	X4928A00	IC	KIA7805API 5V	
⚠	IC235	X7976A00	IC	NJM2388F63 5V	
⚠	IC236	X4153A00	IC	KIA7812API	
⚠	IC237	X4154A00	IC	KIA7912PI	
	IC238	X0515A00	IC	LM61CIZ THERMAL	
	JK201	WJ117300	JACK.PHONE	PHONES	
	JK261	V9408200	JACK.PHONE	MSJ-064-05B GR	
	JK266	WJ117400	JACK.MNI	OPTIMIZER MIC	B
	PJ241	WJ117500	CN	3P	TGE
	PJ266	WJ117500	CN	3P	B
	PN201-202	V9637500	PIN	L=70 #18	
	PN231-232	V9637500	PIN	L=70 #18	
	PN241	V9637500	PIN	L=70 #18	TGE
	PN266	V9637500	PIN	L=70 #18	B
	PN272-273	V9637500	PIN	L=70 #18	
	Q2001-2005	VV556400	TR	2SC2412K Q,R,S	
	Q2011-2012	WC434800	TR.DGT	KRA102S-RTK/P	
	Q2013	WC435000	TR.DGT	KRC102S-RTK	
	Q2014	VV556400	TR	2SC2412K Q,R,S	
	Q2015-2016	VV556500	TR	2SA1037K Q,R,S	
	Q2017	VV556400	TR	2SC2412K Q,R,S	
	Q2151	WC435100	TR.DGT	KRC104S-RTK	
	Q2152	VV556400	TR	2SC2412K Q,R,S	
	Q2153	WC435100	TR.DGT	KRC104S-RTK	
⚠	Q2251	VE198800	TR	2SC2705 O,Y	
⚠	R2163	HV753100	R.CAR.FP	1Ω 1/4W	
	R2167	HV753100	R.CAR.FP	1Ω 1/4W	
⚠	R2169-2170	HV753100	R.CAR.FP	1Ω 1/4W	
⚠	R2171	WH820300	R.FUSE	1Ω 1W J	
⚠	R2174	WH819500	R.FUSE	0.47Ω 1W	
	R2301-2302	WJ685600	R.MTL.FLM	470Ω 1W J	
⚠	RY251	V9366900	RELAY	DLS9D1-O(M)0.25W	
	ST241	WA789700	SCR.TERM	M3	TGE
	ST251	WA789600	SCR.TERM	M3	
	ST261	WA789700	SCR.TERM	M3	
	SW201-220	WD483100	SW.TACT	SKRGAAD010	
	SW221	V9597100	SW.RT.ENC	EC12E2460802	
	SW274	WD483100	SW.TACT	SKRGAAD010	
* ⚠	T251	X8523A00	TRANS.PWR		
⚠	TE251	V5867400	OUTLET.AC	2P	T
⚠	TE251	VU543300	OUTLET.AC	1P	B
⚠	TE251	VU543400	OUTLET.AC	2P	GE
	U2002	WJ645300	L.DTCT	SM3385UMH6	
	V2001	WJ264400	FL.DSPLY	17-BT-29GNK	
		WA790900	SPACER	4.6/10/32	

* New Parts

	Ref. No.	Part No.	Description			Markets
*		WK038000	P.C.B.	MAIN		T
*		WK038200	P.C.B.	MAIN		B
*		WK038100	P.C.B.	MAIN		GE
	CB101	VQ962800	CN.BS.PIN	7P		
	CB103	VK025100	CN.BS.PIN	7P		
	CB104	LB932060	CN.BS.PIN	6P		
	CB161	VQ047500	CN.BS.PIN	20P		
	CB163	VM923600	CN.BS.PIN	13P		
	CB164	VQ963600	CN.BS.PIN	15P		
	CB191	VB858300	CN.BS.PIN	4P		
	CB192	VB858400	CN.BS.PIN	5P		
	CB193	VB858200	CN.BS.PIN	3P		
	C1001	WJ605000	C.MYLAR	0.01uF	50V J	
	C1002	UR837100	C.EL	10uF	16V	T
	C1002	UR067100	C.EL	10uF	50V	BGE
	C1003	UR837100	C.EL	10uF	16V	T
	C1003	UR067100	C.EL	10uF	50V	BGE
	C1004	UR866220	C.EL	2.2uF	50V	
	C1005	UR837100	C.EL	10uF	16V	T
	C1005	UR067100	C.EL	10uF	50V	BGE
	C1006-1007	UR866220	C.EL	2.2uF	50V	
	C1008-1009	UR837100	C.EL	10uF	16V	
	C1010	UR877220	C.EL	22uF	63V	
	C1011	WJ603300	C.MYLAR	470pF	50V J	
	C1012	UR897100	C.EL	10uF	100V	T
	C1012	UR297100	C.EL	10uF	100V	BGE
	C1013	WJ603300	C.MYLAR	470pF	50V J	
	C1014	UR897100	C.EL	10uF	100V	T
	C1014	UR297100	C.EL	10uF	100V	BGE
	C1015	UR877220	C.EL	22uF	63V	
	C1016	UR897100	C.EL	10uF	100V	T
	C1016	UR297100	C.EL	10uF	100V	BGE
	C1017	UR897100	C.EL	10uF	100V	T
	C1017	UR297100	C.EL	10uF	100V	BGE
	C1018-1020	WJ603300	C.MYLAR	470pF	50V J	
	C1021	WJ602900	C.MYLAR	100pF	50V K	
	C1022	UR867330	C.EL	33uF	50V	T
	C1022	UR067330	C.EL	33uF	50V	BGE
	C1023	WJ602900	C.MYLAR	100pF	50V K	
	C1024	UR867330	C.EL	33uF	50V	
	C1025	UR867330	C.EL	33uF	50V	T
	C1025	UR067330	C.EL	33uF	50V	BGE
	C1026	WJ602900	C.MYLAR	100pF	50V K	
	C1027	UR867330	C.EL	33uF	50V	T
	C1027	UR067330	C.EL	33uF	50V	BGE
	C1028	UR867330	C.EL	33uF	50V	
	C1029	WJ602900	C.MYLAR	100pF	50V K	
	C1030	UR897100	C.EL	10uF	100V	T
	C1030	UR297100	C.EL	10uF	100V	BGE
	C1031	WJ602900	C.MYLAR	100pF	50V K	
	C1032	FG651100	C.CE	10pF	50V	
	C1033	UR866100	C.EL	1uF	50V	
	C1034-1037	FG650500	C.CE	5pF	50V	
	C1038-1042	WJ605800	C.MYLAR	0.047uF	50V J	
	C1043	UR866470	C.EL	4.7uF	50V	
	C1044	UR828220	C.EL	220uF	10V	
	C1045	UR858100	C.EL	100uF	35V	T
	C1045	UR058100	C.EL	100uF	35V	BGE
	C1046-1047	WJ605400	C.MYLAR	0.022uF	50V J	
	C1048	UR866470	C.EL	4.7uF	50V	T

* New Parts

RX-V461/HTR-6040/ RX-V461DAB

P.C.B. MAIN

	Ref. No.	Part No.	Description			Markets
	C1048	UR066470	C.EL	4.7uF	50V	BGE
	C1049	UR858100	C.EL	100uF	35V	T
	C1049	UR058100	C.EL	100uF	35V	BGE
* ⚠	C1050-1051	WM457800	C.EL	6800uF	63V	
	C1052-1055	WJ605000	C.MYLAR	0.01uF	50V J	
	C1056-1057	WJ611400	C.MYLAR	0.1uF	100V J	
	C1058	UR868100	C.EL	100uF	50V	T
	C1058	UR068100	C.EL	100uF	50V	BGE
	C1059	US064100	C.CE.CHP	0.01uF	50V B	
	C1060	UR837330	C.EL	33uF	16V	
	C1601	WJ605000	C.MYLAR	0.01uF	50V J	
	C1602	WJ603300	C.MYLAR	470pF	50V J	
	C1603	US064100	C.CE.CHP	0.01uF	50V B	
	C1606-1617	US062220	C.CE.CHP	220pF	50V B	
	C1618-1619	US061470	C.CE.CHP	47pF	50V B	
	C1620-1623	US062220	C.CE.CHP	220pF	50V B	
	C1624-1625	US061470	C.CE.CHP	47pF	50V B	
	C1626-1629	UR837100	C.EL	10uF	16V	
	C1631	UR866220	C.EL	2.2uF	50V	
	C1632	US135100	C.CE.CHP	0.1uF	16V	
	C1633	UR837100	C.EL	10uF	16V	T
	C1633	UR037100	C.EL	10uF	16V	BGE
	C1634	UR837100	C.EL	10uF	16V	T
	C1634	UR037100	C.EL	10uF	16V	BGE
	C1635	UR847470	C.EL	47uF	25V	T
	C1635	UR037470	C.EL	47uF	16V	BGE
	C1636	UR847470	C.EL	47uF	25V	T
	C1636	UR037470	C.EL	47uF	16V	BGE
	C1636	UR847470	C.EL	47uF	25V	T
	C1637	UR038100	C.EL	100uF	16V	BGE
	C1638	UR838100	C.EL	100uF	16V	T
	C1638	UR038100	C.EL	100uF	16V	BGE
	C1639-1641	US062100	C.CE.CHP	100pF	50V B	
	C1642	US064100	C.CE.CHP	0.01uF	50V B	
	C1643	US063100	C.CE.CHP	1000pF	50V B	
	C1644	US062100	C.CE.CHP	100pF	50V B	
	C1645	WJ605400	C.MYLAR	0.022uF	50V J	
	C1646	WJ605800	C.MYLAR	0.047uF	50V J	
	C1647	VE326200	C.MYLAR	0.15uF	50V	
	C1648	UR837470	C.EL	47uF	16V	T
	C1648	UR037470	C.EL	47uF	16V	BGE
	C1649	WJ605400	C.MYLAR	0.022uF	50V J	
	C1650-1655	UR837100	C.EL	10uF	16V	
	C1656	UR837470	C.EL	47uF	16V	T
	C1656	UR037470	C.EL	47uF	16V	BGE
	C1657	VE326200	C.MYLAR	0.15uF	50V	
	C1658	US135100	C.CE.CHP	0.1uF	16V	
	C1659	WJ605800	C.MYLAR	0.047uF	50V J	
	C1660	UR837470	C.EL	47uF	16V	T
	C1660	UR037470	C.EL	47uF	16V	BGE
	C1661	US135100	C.CE.CHP	0.1uF	16V	BGE
	C1662	UR837100	C.EL	10uF	16V	T
	C1662	UR067100	C.EL	10uF	50V	BGE
	C1663	UR837100	C.EL	10uF	16V	T
	C1663	UR067100	C.EL	10uF	50V	BGE
	C1664-1665	UR837100	C.EL	10uF	16V	
	C1666	UR837100	C.EL	10uF	16V	T
	C1666	UR067100	C.EL	10uF	50V	BGE
	C1667	UR837100	C.EL	10uF	16V	
	C1668	UR838100	C.EL	100uF	16V	T

✻ New Parts

	Ref. No.	Part No.	Description			Markets
	C1668	UR038100	C.EL	100uF	16V	BGE
	C1669	US062330	C.CE.CHP	330pF	50V B	BGE
	C1670	UR866220	C.EL	2.2uF	50V	
	C1671-1674	US162820	C.CE	820pF	50V J	
	C1675	WJ603600	C.MYLAR	820pF	50V J	
	C1676	WJ605800	C.MYLAR	0.047uF	50V J	
	C1677-1678	UR837100	C.EL	10uF	16V	
	C1679	US062330	C.CE.CHP	330pF	50V B	BGE
	C1680-1682	UR837100	C.EL	10uF	16V	
	C1683-1684	UR037470	C.EL	47uF	16V	BGE
	C1685-1690	US062100	C.CE.CHP	100pF	50V B	
	C1691	US062560	C.CE.CHP	560pF	50V B	BGE
	C1692	WJ604400	C.MYLAR	3900pF	50V J	
	C1693-1699	UR837100	C.EL	10uF	16V	
	C1700	US061270	C.CE.CHP	27pF	50V B	BGE
	C1701	US135100	C.CE.CHP	0.1uF	16V	BGE
	C1702	UR838100	C.EL	100uF	16V	T
	C1702	UR038100	C.EL	100uF	16V	BGE
	C1703	US061270	C.CE.CHP	27pF	50V B	BGE
	C1704	UR037470	C.EL	47uF	16V	BGE
	C1705	UR838100	C.EL	100uF	16V	T
	C1705	UR038100	C.EL	100uF	16V	BGE
	C1706	UR838100	C.EL	100uF	16V	T
	C1706	UR038100	C.EL	100uF	16V	BGE
	C1707	US135100	C.CE.CHP	0.1uF	16V	BGE
	D101-102	VD631600	DIODE	1SS133,176		
	D103	VU171900	DIODE.ZENR	UDZ5.1B	5.1V	
	D104	WC398800	DIODE	KDS160-RTK		
	D105-106	VN008700	DIODE	1SS270A		
	D107	WC398800	DIODE	KDS160-RTK		
	D108-110	VN008700	DIODE	1SS270A		
	D111-113	VD631600	DIODE	1SS133,176		
	D114-115	VN008700	DIODE	1SS270A		
⚠	D116	VG443700	DIODE.ZENR	MTZJ33B	33V	
	D117	VN008700	DIODE	1SS270A		
	D118-119	VD631600	DIODE	1SS133,176		
⚠	D120	WA653200	DIODE.BRG	TS6P03G	6A 200V	
	D121	VD631600	DIODE	1SS133,176		
	D122-123	VS997800	DIODE	1T2		
	D161-162	VU994300	DIODE.ZENR	MA8075-H	7.7V	
	D163	VU995500	DIODE.ZENR	MA8100-H	10.3V	
⚠	IC101	X8190A00	IC	STK433-330-E		
⚠	IC102	X7427A00	IC	STK433-130-E		
	IC161	X8155A00	IC	R2A15215FP		
	IC162-164	X8302A00	IC	AZ4580MTR-E1 OPAMP		
*	IC168	X8235A00	IC	LC72725KM		BGE
	IC169	X8302A00	IC	AZ4580MTR-E1 OPAMP		
	PJ161	WJ648900	JACK.PIN	6P		
	PJ162	WJ649000	JACK.PIN	6P		
	PJ163	WJ649300	JACK.PIN	1P		
	PJ164-165	WJ649200	JACK.PIN	4P		
	PN191-192	V9637500	PIN	L=70 #18		
	Q101-105	VD303700	TR	2SC3326 A,B		
	Q106-108	WC434800	TR.DGT	KRA102S-RTK/P		
⚠	Q109	WC398400	TR	2N5551C-AT		
⚠	Q110-111	VC614000	TR	2SB1274 Q,R,S		
⚠	Q112	WC398400	TR	2N5551C-AT		
⚠	Q113-114	WC397700	TR	2N5401C-AT		
⚠	Q115-119	WC398400	TR	2N5551C-AT		
⚠	Q120	WC397700	TR	2N5401C-AT		

✻ New Parts

P.C.B. MAIN and P.C.B. VIDEO

	Ref. No.	Part No.	Description		Markets
	Q121-123	WC434900	TR.DGT	KRA104S-RTK	
⚠	Q124	VP872600	TR	2SA1708 S,T	
	Q125-126	WC434900	TR.DGT	KRA104S-RTK	
⚠	Q127	WC435000	TR.DGT	KRC102S-RTK	
	Q128	iC181510	TR	2SC1815 Y	
	Q129-132	WC435000	TR.DGT	KRC102S-RTK	
	Q133	WC434900	TR.DGT	KRA104S-RTK	
	Q161-162	VZ725900	TR	2SD1938F S,T	
	Q163	WC434800	TR.DGT	KRA102S-RTK/P	
	Q164	iC181510	TR	2SC1815 Y	
	Q165	iA101510	TR	2SA1015 Y	
	Q166	iC181510	TR	2SC1815 Y	
	Q167	iC174020	TR	2SC1740S QRS	BGE
⚠	R1027-1028	HV753220	R.CAR.FP	2.2Ω 1/4W	
⚠	R1031	HV755560	R.CAR.FP	560Ω 1/4W	
⚠	R1038	HV754100	R.CAR.FP	10Ω 1/4W	
⚠	R1043	HV754100	R.CAR.FP	10Ω 1/4W	
⚠	R1054	WB279900	R.CEMENT	RGC55C 0.22+0.22	
⚠	R1057	WB279900	R.CEMENT	RGC55C 0.22+0.22	
⚠	R1061	WB279900	R.CEMENT	RGC55C 0.22+0.22	
⚠	R1069-1070	WB279900	R.CEMENT	RGC55C 0.22+0.22	
	R1085	HV754100	R.CAR.FP	10Ω 1/4W	
	R1087	HV754100	R.CAR.FP	10Ω 1/4W	
	R1089	HV754100	R.CAR.FP	10Ω 1/4W	
	R1092-1093	HV754100	R.CAR.FP	10Ω 1/4W	
⚠	R1095	WB625100	R.MTL.FLM	4.7Ω 1W J	
⚠	R1099-1100	WB625100	R.MTL.FLM	4.7Ω 1W J	
⚠	R1103-1104	WB625100	R.MTL.FLM	4.7Ω 1W J	
⚠	R1106	HV756150	R.CAR.FP	1.5KΩ 1/4W	
	R1107	HV753470	R.CAR.FP	4.7Ω 1/4W	
⚠	R1110	WB627300	R.MTL.OXD	470Ω 1W	
	R1111	HV753470	R.CAR.FP	4.7Ω 1/4W	
	R1659-1660	HV753220	R.CAR.FP	2.2Ω 1/4W	
⚠	RY101-105	WJ122400	RELAY	981-2A-24DS-SP7	
	RY106	WE648700	RELAY	DC DH24D2-0-Q	
	ST101	WA789600	SCR.TERM	M3	
*	TE101	WK560800	TERM.SP	4P MST-204V1-01 NC	T
*	TE101	WK560900	TERM.SP	4P MST-204V1-01 WC	BGE
*	XL161	WJ588000	RSNR.CRYS	4.332MHz	BGE
		WE774200	SCR.BND.HD	3x10 MFZN2W3	
*		WK038300	P.C.B.	VIDEO	T
*		WJ641700	P.C.B.	VIDEO	B
*		WK038400	P.C.B.	VIDEO	GE
	CB305	VF982200	CN.BS.PIN	14P	
	CB306-307	VQ961500	CN.BS.PIN	12P	
	CB321	VQ961900	CN	16P	
	CB322	VB858500	CN.BS.PIN	6P	
	CB341	VQ963700	CN.BS.PIN	16P	
	CB342-343	VQ963300	CN.BS.PIN	12P	
	CB381	LB919040	CN.BS.PIN	4P	
	CB382	LB919060	CN.BS.PIN	6P	
	C3001-3002	US062100	C.CE.CHP	100pF 50V B	
	C3018-3019	US062100	C.CE.CHP	100pF 50V B	
	C3020-3025	US135100	C.CE.CHP	0.1uF 16V	
	C3045	UR837100	C.EL	10uF 16V	T
	C3045	UR037100	C.EL	10uF 16V	BGE
	C3046	UR837100	C.EL	10uF 16V	T

✻ New Parts

Ref. No.	Part No.	Description		Markets
C3046	UR037100	C.EL	10uF 16V	BGE
C3201-3203	US060800	C.CE.CHP	8pF 50V B	
C3204-3205	US062100	C.CE.CHP	100pF 50V B	
C3206-3208	US135100	C.CE.CHP	0.1uF 16V	
C3209	UR837470	C.EL	47uF 16V	
C3210	US135100	C.CE.CHP	0.1uF 16V	
C3211	UR837470	C.EL	47uF 16V	
C3212	US135100	C.CE.CHP	0.1uF 16V	
C3213	UR837470	C.EL	47uF 16V	
C3214	US135100	C.CE.CHP	0.1uF 16V	
C3215-3216	US061220	C.CE.CHP	22pF 50V B	
C3217	US135100	C.CE.CHP	0.1uF 16V	
C3218	US061220	C.CE.CHP	22pF 50V B	
C3219-3220	US135100	C.CE.CHP	0.1uF 16V	
C3221	UR837100	C.EL	10uF 16V	T
C3221	UR037100	C.EL	10uF 16V	BGE
C3222	UR837100	C.EL	10uF 16V	T
C3222	UR037100	C.EL	10uF 16V	BGE
C3223	US135100	C.CE.CHP	0.1uF 16V	
C3224	UR847100	C.EL	10uF 25V	
C3225	US135100	C.CE.CHP	0.1uF 16V	
C3226	UR847100	C.EL	10uF 25V	
C3227	UR838100	C.EL	100uF 16V	T
C3227	UR038100	C.EL	100uF 16V	BGE
C3228	UR837100	C.EL	10uF 16V	T
C3228	UR037100	C.EL	10uF 16V	BGE
C3403-3404	US135100	C.CE.CHP	0.1uF 16V	
C3405	UR827470	C.EL	47uF 10V	T
C3405	UR037470	C.EL	47uF 16V	BGE
C3406	UR827470	C.EL	47uF 10V	T
C3406	UR037470	C.EL	47uF 16V	BGE
C3407-3408	UR818100	C.EL	100uF 6.3V	
C3409	US135100	C.CE.CHP	0.1uF 16V	
C3410-3411	US060500	C.CE.CHP	5pF 50V B	
C3412-3415	US135100	C.CE.CHP	0.1uF 16V	
C3416-3417	UR827470	C.EL	47uF 10V	
C3418-3419	US135100	C.CE.CHP	0.1uF 16V	
C3420	UR866100	C.EL	1uF 50V	
C3421-3422	UR827470	C.EL	47uF 10V	
C3423	US060300	C.CE.CHP	3pF 50V B	
C3424	US061240	C.CE.CHP	24pF 50V B	
C3425	US135100	C.CE.CHP	0.1uF 16V	
C3426	US061240	C.CE.CHP	24pF 50V B	
C3427-3434	US135100	C.CE.CHP	0.1uF 16V	
C3435	UR837100	C.EL	10uF 16V	T
C3435	UR037100	C.EL	10uF 16V	BGE
C3436-3437	US135100	C.CE.CHP	0.1uF 16V	
C3438	UR837100	C.EL	10uF 16V	T
C3438	UR037100	C.EL	10uF 16V	BGE
C3439	UR837100	C.EL	10uF 16V	T
C3439	UR037100	C.EL	10uF 16V	BGE
C3440	US061100	C.CE.CHP	10pF 50V B	
C3801-3815	WJ605000	C.MYLAR	0.01uF 50V J	
D3201-3204	VT332900	DIODE	1SS355	
IC301-302	XY550A00	IC	MM74HC4051SJX	
IC321	X2904A00	IC	NJM2581M VIDEO AMP	
IC322	XY550A00	IC	MM74HC4051SJX	
IC323	X7973A00	IC	KIA79M05PI-U	
IC324-325	XS790A00	IC	TC74HC4052AF MPX	
IC342	X7818A00	IC	LC74782JM-8A16-TLM	

✻ New Parts

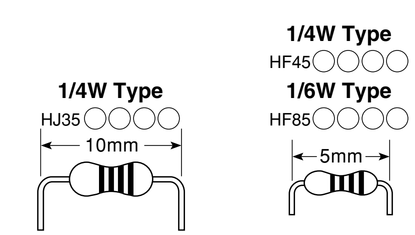
P.C.B. VIDEO, P.C.B. HDMI and P.C.B. DAB

	Ref. No.	Part No.	Description		Markets
	IC343	XY877A00	IC	MM74HC4053SJX	
	IC344	X6742A00	IC	LA73050-TLM-E	
	JK301	VS867300	CN.DIN	4P YKF51-5501	
	JK302-303	V9273500	CN.DIN	2P YKF51-5605	
	PJ321	V7189800	JACK.PIN	1P	
	PJ322-323	V7190000	JACK.PIN	2P	
*	PJ324-325	WG505100	JACK.PIN	6P	
	PN381	V9637500	PIN	L=70 #18	
	Q3201	VV556400	TR	2SC2412K Q,R,S	
	Q3401-3402	VV556400	TR	2SC2412K Q,R,S	
	R3231	HV754100	R.CAR.FP	10Ω 1/4W	
	R3401-3402	HV753100	R.CAR.FP	1Ω 1/4W	
	R3416	HV755470	R.CAR.FP	470Ω 1/4W	
	R3417	HV753100	R.CAR.FP	1Ω 1/4W	
	R3801-3805	HV753220	R.CAR.FP	2.2Ω 1/4W	
	ST301-302	WA789600	SCR.TERM	M3	
	ST322	WA789600	SCR.TERM	M3	
*	TE381	WK560800	TERM.SP	4P MST-204V1-01 NC	T
*	TE381	WK560900	TERM.SP	4P MST-204V1-01 WC	BGE
*	TE382	WK561000	TERM.SP	6P MST-207V1-01 NC	T
*	TE382	WK561100	TERM.SP	6P MST-207V1-01 WC	BGE
*	XL341	WK196100	RSNR.CRYS	17.734475MHz	
*		WJ644800	P.C.B.	HDMI	TGE
	CB901-903	WH641400	CN.HDMI	19P SE	TGE
	CB905	LB919030	CN.BS.PIN	3P	TGE
	CB906	VB858200	CN.BS.PIN	3P	TGE
	C4902	WD758300	C.CE.CHP	10uF 10V	TGE
	C4903-4905	US135100	C.CE.CHP	0.1uF 16V	TGE
	C4906	V5333500	C.CE.CHP	10uF 6.3V	TGE
	C4907	UF017220	C.EL.CHP	22uF 6.3V	TGE
	C4908-4910	US135100	C.CE.CHP	0.1uF 16V	TGE
	C4911	V5333500	C.CE.CHP	10uF 6.3V	TGE
	C4912-4914	US135100	C.CE.CHP	0.1uF 16V	TGE
	C4915	UF037100	C.EL.CHP	10uF 16V	TGE
	C4916-4918	US135100	C.CE.CHP	0.1uF 16V	TGE
	C4919	UF027220	C.EL.CHP	22uF 10V	TGE
	C4920	US135100	C.CE.CHP	0.1uF 16V	TGE
	C4921	UF028100	C.EL.CHP	100uF 10V	TGE
	C4922	US135100	C.CE.CHP	0.1uF 16V	TGE
	C4923	UF028100	C.EL.CHP	100uF 10V	TGE
	C4924	US135100	C.CE.CHP	0.1uF 16V	TGE
	D4909-4910	WE674800	DIODE	AVRL161A1R1NTB	TGE
	D4912	VT332900	DIODE	1SS355	TGE
	D4913-4916	WH641900	ESD	PESD0603-140	TGE
	D4917-4918	WE674800	DIODE	AVRL161A1R1NTB	TGE
	D4919-4926	WH641900	ESD	PESD0603-140	TGE
	D4927-4928	WE674800	DIODE	AVRL161A1R1NTB	TGE
	D4929-4932	WH641900	ESD	PESD0603-140	TGE
	D4933-4934	VT332900	DIODE	1SS355	TGE
	D4936-4937	VU171400	DIODE.ZENR	UDZS3.3BTE-17 3.3V	TGE
	F4901	V2997600	SW.POLY	SMDC050-02	TGE
	IC902	X7741A00	IC	NJM2867F3-05(TE1)	TGE
*	IC903	X8900A00	IC	CXB1442AR-T4	TGE
	IC904	X7854A00	IC	SN74LVC3G04DCTR	TGE
	IC905	X6869A00	IC	NJM2885DL1-33	TGE
	IC906	X5896A00	IC	SN74LVC1G08DCKR	TGE
*	IC907	X7743A00	IC	SN74CB3Q3257PWR	TGE
	IC908	X4454A00	IC	SN74LVC2G17DCKR	TGE
*	IC909	XP351A00	IC	TC7S32FU(TE85L,F)	TGE
*	IC910	XP001A00	IC	TC7S04FU(TE85L,F)	TGE
*	IC911	X7788A00	IC	TC7S86FU(TE85L,F)	TGE
	Q4902-4906	VV556400	TR	2SC2412K Q,R,S	TGE
	ST901-902	V4040500	SCR.TERM	M3	TGE
*		WJ644900	P.C.B.	DAB	B
	CB361	VB858200	CN.BS.PIN	3P	B
	CB362	LB919020	CN.BS.PIN	2P	B
	CB363	WG222400	CN.BS.PIN	44P TE	B
	C3601	US064100	C.CE.CHP	0.01uF 50V B	B
	C3602	UR837470	C.EL	47uF 16V	B
	C3603	US135100	C.CE.CHP	0.1uF 16V	B
	C3604	US135330	C.CE.CHP	0.33uF 16V	B
	C3605	UR866100	C.EL	1uF 50V	B
	C3606	UR837470	C.EL	47uF 16V	B
	C3613-3614	US062220	C.CE.CHP	220pF 50V B	B
	C3616-3617	UR238220	C.EL	220uF 16V	B
	C3618-3619	US135100	C.CE.CHP	0.1uF 16V	B
	C3621	US126100	C.CE.CHP	1uF 10V	B
	C3622	US064100	C.CE.CHP	0.01uF 50V B	B
	C3623	US126100	C.CE.CHP	1uF 10V	B
	C3624	US135100	C.CE.CHP	0.1uF 16V	B
	C3625-3626	US064100	C.CE.CHP	0.01uF 50V B	B
	IC361	X6143A00	IC	NJM2388F05 5.0V	B
	IC362	X6248A00	IC	NJM2388F33	B
		WG158700	SUPPORT		B

✻ New Parts

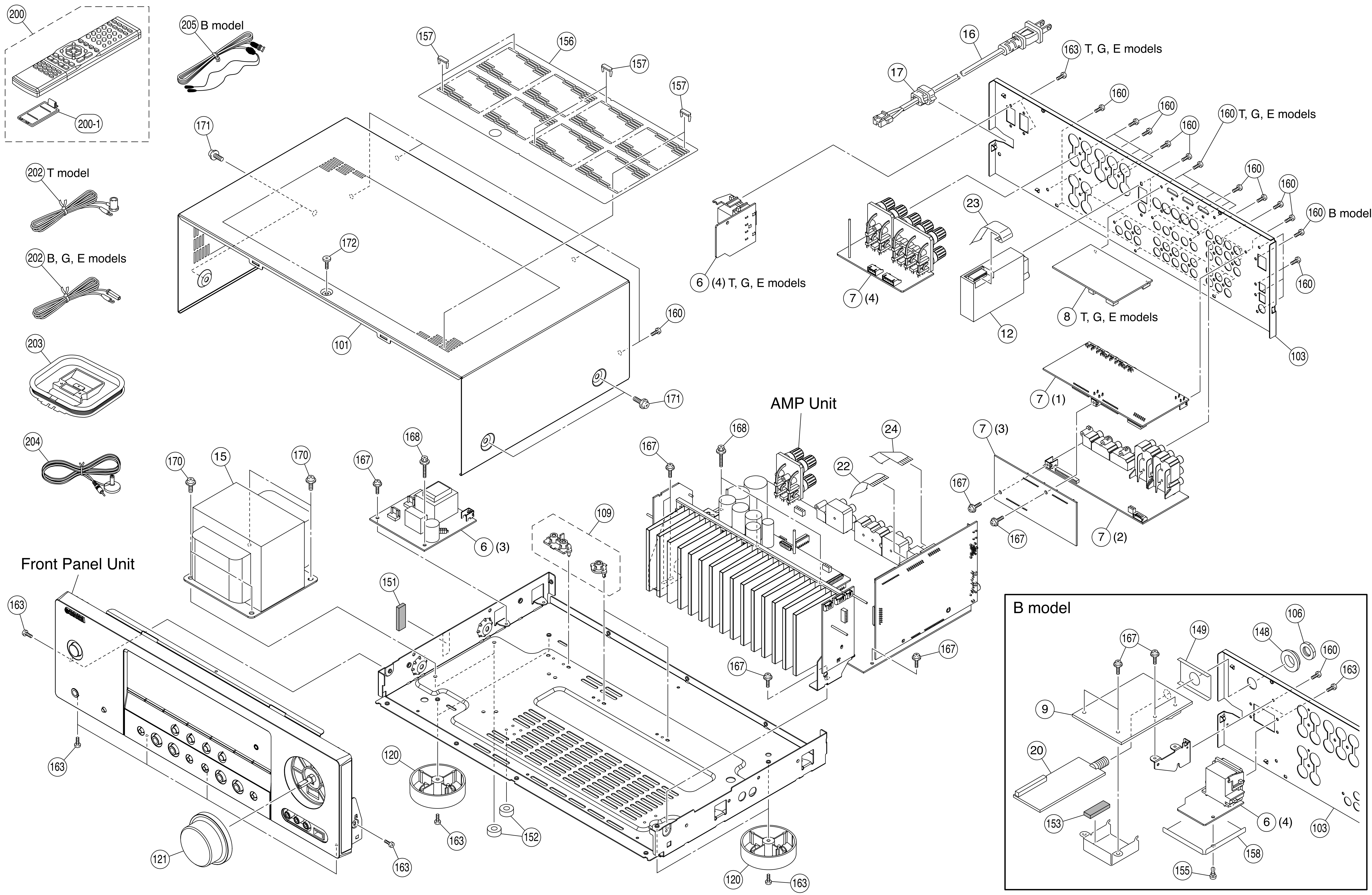
Carbon Resistors

Value	1/4W Type Part No.	1/6W Type Part No.	Value	1/4W Type Part No.	1/6W Type Part No.
1.0 Ω	HJ35 3100	HF85 3100	10 kΩ	HF45 7100	HF45 7100
1.8 Ω	HJ35 3180	✻	11 kΩ	HF45 7110	HF45 7110
2.2 Ω	HJ35 3220	HF85 3220	12 kΩ	HJ35 7120	HF85 7120
3.3 Ω	HJ35 3330	HF85 3330	13 kΩ	HF45 7130	HF45 7130
4.7 Ω	HJ35 3470	HF85 3470	15 kΩ	HF45 7150	HF45 7150
5.6 Ω	HJ35 3560	HF85 3560	18 kΩ	HF45 7180	HF45 7180
10 Ω	HF45 4100	HF45 4100	22 kΩ	HF45 7220	HF45 7220
15 Ω	HJ35 4150	HF85 4150	24 kΩ	HF45 7240	HF45 7240
22 Ω	HF45 4220	HF45 4220	27 kΩ	HJ35 7270	HF85 7270
27 Ω	HJ35 4270	HF85 4270	30 kΩ	HF45 7300	HF45 7300
33 Ω	HF45 4330	HF45 4330	33 kΩ	HF45 7330	HF45 7330
39 Ω	HJ35 4470	HF85 4390	36 kΩ	HF45 7360	HF45 7360
47 Ω	HF45 4470	HF45 4470	39 kΩ	HF45 7390	HF45 7390
56 Ω	HF45 4560	HF45 4560	47 kΩ	HF45 7470	HF45 7470
68 Ω	HF45 4680	HF45 4680	51 kΩ	HF45 7510	HF45 7510
75 Ω	HF45 4750	HF45 4750	56 kΩ	HF45 7560	HF45 7560
82 Ω	HF45 4820	HF45 4820	62 kΩ	HF45 7620	HF45 7620
91 Ω	HF45 4910	HF45 4910	68 kΩ	HF45 7680	HF45 7680
100 Ω	HF45 5100	HF45 5100	82 kΩ	HF45 7820	HF45 7820
110 Ω	HJ35 5110	HF85 5110	91 kΩ	HF45 7910	HF45 7910
120 Ω	HF45 5120	HF45 5120	100 kΩ	HF45 8100	HF45 8100
150 Ω	HF45 5150	HF45 5150	110 kΩ	HF45 8110	HF45 8110
160 Ω	HJ35 5160	✻	120 kΩ	HF45 8120	HF45 8120
180 Ω	HF45 5180	HF45 5180	150 kΩ	HF45 8150	HF45 8150
200 Ω	HF45 5200	HF45 5200	180 kΩ	HF45 8180	HF45 8180
220 Ω	HF45 5220	HF45 5220	220 kΩ	HJ35 8220	HF85 8220
270 Ω	HF45 5270	HF45 5270	270 kΩ	HF45 8270	HF45 8270
330 Ω	HF45 5330	HF45 5330	300 kΩ	HF45 8300	HF45 8300
390 Ω	HF45 5390	HF45 5390	330 kΩ	HF45 8330	HF45 8330
430 Ω	HF45 5430	HF45 5430	390 kΩ	HJ35 8390	HF85 8390
470 Ω	HF45 5470	HF45 5470	470 kΩ	HF45 8470	HF45 8470
510 Ω	HF45 5510	HF45 5510	560 kΩ	HJ35 8560	HF85 8560
560 Ω	HF45 5560	HF45 5560	680 kΩ	HJ35 8680	HF85 8680
680 Ω	HF45 5680	HF45 5680	820 kΩ	HJ35 8820	HF85 8820
820 Ω	HF45 5820	HF45 5820	1.0 MΩ	HF45 9100	HF45 9100
910 Ω	HF45 5910	HF45 5910	1.2 MΩ	HJ35 9120	✻
1.0 kΩ	HF45 6100	HF45 6100	1.5 MΩ	HJ35 9150	HF85 9150
1.2 kΩ	HF45 6120	HF45 6120	1.8 MΩ	HJ35 9180	HF85 9180
1.5 kΩ	HF45 6150	HF45 6150	2.2 MΩ	HJ35 9220	HF85 9220
1.8 kΩ	HF45 6180	HF45 6180	3.3 MΩ	HJ35 9330	HF85 9330
2.0 kΩ	HJ35 6200	HF85 6200	3.9 MΩ	HJ35 9390	✻
2.2 kΩ	HF45 6220	HF45 6220	4.7 MΩ	HJ35 9470	HF85 9470
2.4 kΩ	HJ35 6240	HF85 6240			
2.7 kΩ	HF45 6270	HF45 6270			
3.0 kΩ	HF45 6300	HF45 6300			
3.3 kΩ	HF45 6330	HF45 6330			
3.6 kΩ	HJ35 6360	HF85 6360			
3.9 kΩ	HF45 6390	HF45 6390			
4.7 kΩ	HF45 6470	HF45 6470			
5.1 kΩ	HF45 6510	HF45 6510			
5.6 kΩ	HF45 6560	HF45 6560			
6.8 kΩ	HF45 6680	HF45 6680			
8.2 kΩ	HF45 6820	HF45 6820			
9.1 kΩ	HF45 6910	HF45 6910			



✻ : Not available

• OVERALL ASS'Y



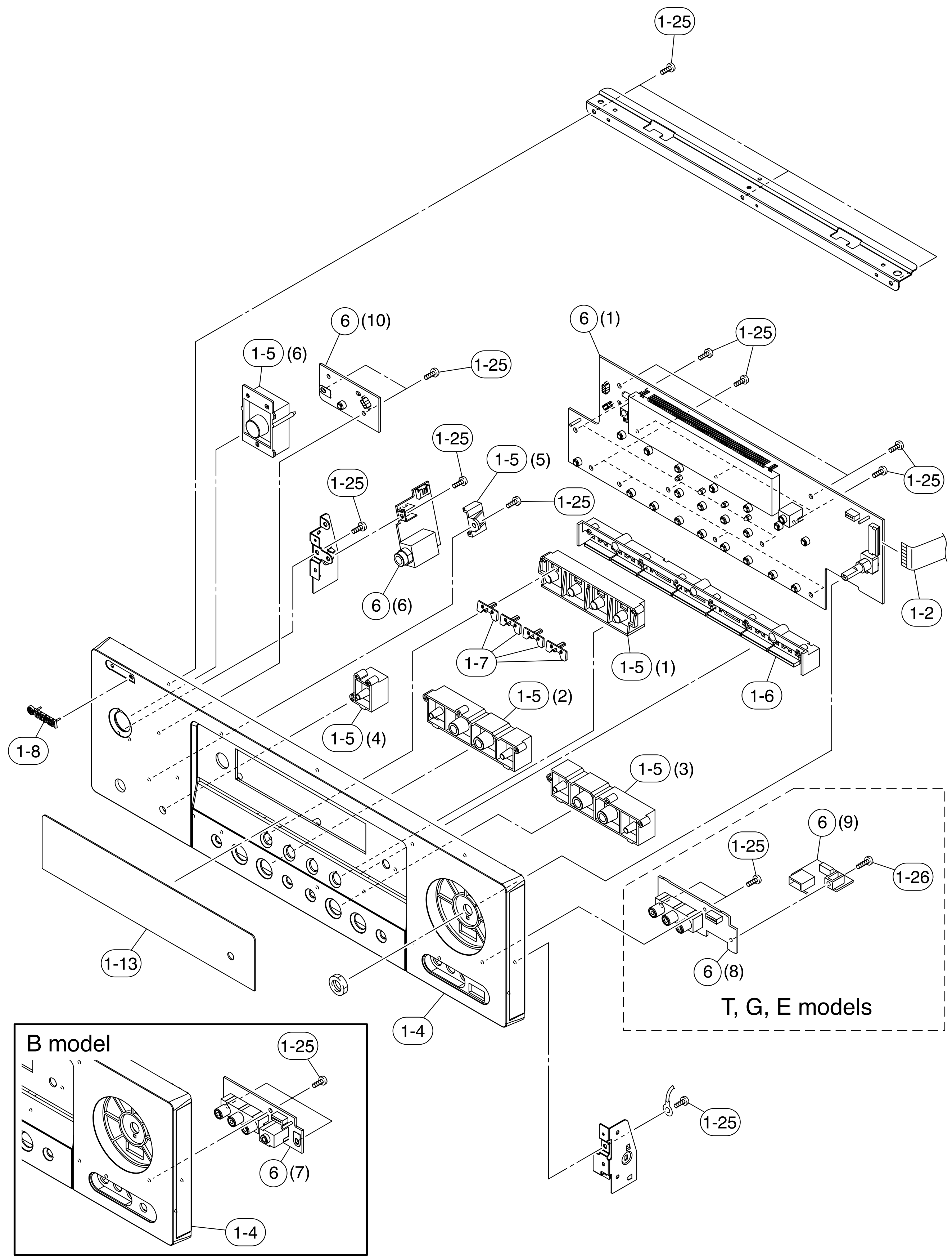
	Ref. No.	Part No.	Description		Remarks	Markets
*	6	WK038800	P.C.B. ASS'Y	OPERATION		T
*	6	WK039100	P.C.B. ASS'Y	OPERATION		B
*	6	WK038900	P.C.B. ASS'Y	OPERATION		GE
*	7	WK038300	P.C.B. ASS'Y	VIDEO		T
	7	WJ641700	P.C.B. ASS'Y	VIDEO		B
*	7	WK038400	P.C.B. ASS'Y	VIDEO		GE
*	8	WJ644800	P.C.B. ASS'Y	HDMI		TGE
	9	WJ644900	P.C.B. ASS'Y	DAB		B
	12	WB877300	AM/FM TUNER	FAE381-A07F		T
	12	WB424100	AM/FM TUNER	ENG07711Q		BGE
⚠	15	X8608A00	POWER TRANSFORMER			T
* ⚠	15	X8610A00	POWER TRANSFORMER			BGE
⚠	16	WB120600	POWER CABLE	2m		T
⚠	16	WB212200	POWER CABLE	2m		B
⚠	16	WB212300	POWER CABLE	2m		GE
	17	V2438700	CORD STOPPER	10P1		
	20	WG233000	DAB MODULE	VENICE3.0-C-F		B
	22	MF120180	FLEXIBLE FLAT CABLE	20P 180mm P=1.25		
	23	MF113120	FLEXIBLE FLAT CABLE	13P 120mm P=1.25		
	24	MF114100	FLEXIBLE FLAT CABLE	14P 100mm P=1.25		
	101	WE065200	TOP COVER		GD	
	101	WE065000	TOP COVER		BL	
	101	WE065100	TOP COVER		TI	
	101	WG481900	TOP COVER		SI	
*	103	WJ185000	REAR PANEL		V461	T
*	103	WJ185300	REAR PANEL		V461	GE
*	103	WJ185900	REAR PANEL		6040	T
*	103	WJ186100	REAR PANEL		6040	GE
*	103	WJ185200	REAR PANEL		V461DAB	B
	106	WG205000	NUT	3/8 UNEF-32		B
	109	WA796100	SUPPORT P.C.B.			
	120	WA790600	LEG	D60/H21 GD	GD	
	120	WA790500	LEG	D60/H21 HS	V461BL, V461DAB BL, TI, SI	
	120	WA790700	LEG	D60/H21 BL	6040BL	
	121	WG362100	KNOB D48		GD	
	121	WG362000	KNOB D48		BL	
	121	WG466100	KNOB D48		TI	
	121	WG362200	KNOB D48		SI	
*	148	WM283900	WASHER DAB	D18/9.6 t=2.7		B
*	149	WM284000	SHEET DAB			B
	151	WB408400	DAMPER	10x30 t=4		
	152	WB484700	DAMPER	SCREW MASK		
	153	WJ992300	DAMPER	4x10x30		B
	155	VQ368600	PUSH RIVET	P3555-B		B
	156	WJ589800	SHEET TOP			
	157	WJ323900	RIVET TOP			
*	158	WK542800	SHEET OUTLET			B
	160	WE774100	BIND HEAD BONDING B-T. SCREW	3x8 MFZN2B3		
	163	WE774300	BIND HEAD B-TIGHT SCREW	3x8 MFZN2W3		
	167	WF002600	PW HEAD B-TIGHT SCREW	3x8 MFZN2W3		
	168	WE774600	SCREW IC	3x18 MFZN2W3		
	170	WE774700	BIND HEAD S-TIGHT SCREW	4x10 MFZN2W3		
	171	VD069600	PW HEAD S-TIGHT SCREW	4x8-10 MFNI33	GD,TI,SI	
	171	VH313200	PW HEAD S-TIGHT SCREW	4x8-10 MFNI3BL	BL	
	172	WE200400	DISH HEAD B-TIGHT SCREW	3x6 MFNI33	GD,TI,SI	
	172	WE200500	DISH HEAD B-TIGHT SCREW	3x6 MFNI3BL	BL	

✻ New Parts

	Ref. No.	Part No.	Description		Remarks	Markets
			ACCESSORIES			
*	200	WK227300	REMOTE CONTROL	RAV315		TGE
	200	WJ409200	REMOTE CONTROL	RAV310		B
	200-1	AAX82380	BATTERY COVER		CG-2209	
	202	WB212500	INDOOR FM ANTENNA	1.4m 1pc		T
	202	WB212400	INDOOR FM ANTENNA	1.4m 1pc		BGE
	203	WB212600	AM LOOP ANTENNA	1.0m 1pc		
	204	WJ264300	OPTIMIZER MICROPHONE	6m 1pc		
*	205	WK532000	DAB WIRE ANTENNA	1.6m 1pc		B
			BATTERY	R03,AAA,UM-4 2pcs		
			SERVICE TOOL			
		V2854400	FLEXIBLE FLAT CABLE	17P 300mm P=1.25		

✻ New Parts

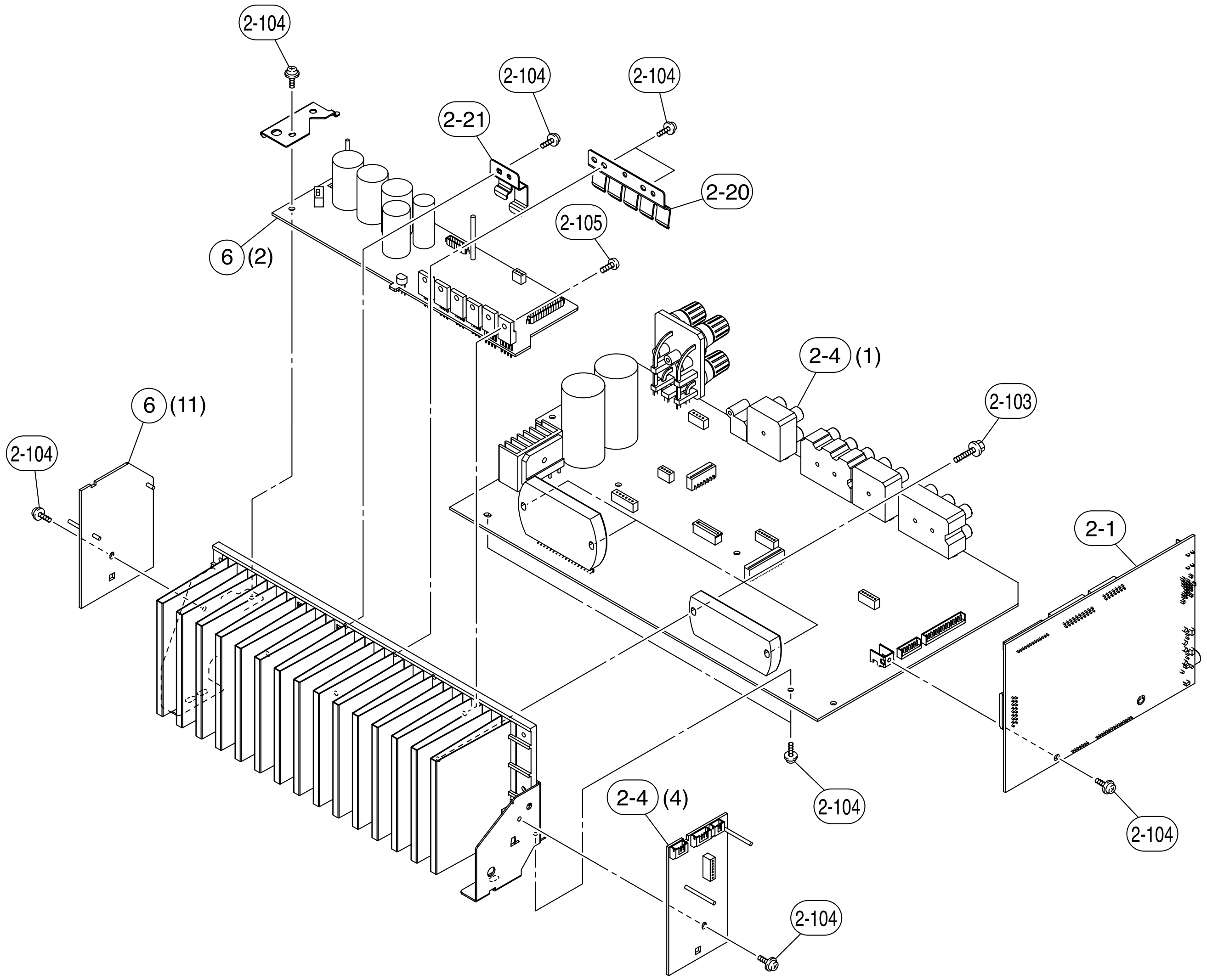
- **FRONT PANEL UNIT**



	Ref. No.	Part No.	Description		Remarks	Markets
	1-2	MF117180	FLEXIBLE FLAT CABLE	17P 180mm P=1.25		
*	1-4	WK122600	FRONT PANEL		V461GD	
*	1-4	WK122800	FRONT PANEL		6040GD	
*	1-4	WJ310000	FRONT PANEL		V461BL	
*	1-4	WJ310200	FRONT PANEL		6040BL	
*	1-4	WJ188200	FRONT PANEL		V461DAB BL	
*	1-4	WJ310100	FRONT PANEL		V461TI	
*	1-4	WJ189200	FRONT PANEL		V461DAB TI	
*	1-4	WJ310400	FRONT PANEL		6040SI	
	1-5	WJ192500	BUTTON CASE		GD	
	1-5	WJ192300	BUTTON CASE		V461BL, V461DAB BL	
	1-5	WJ192400	BUTTON CASE		6040BL	
	1-5	WJ192700	BUTTON CASE		TI	
	1-5	WJ192600	BUTTON CASE		SI	
	1-6	WJ192800	BUTTON TUNER			
	1-7	WJ193200	LENS BUTTON	SCENE		
	1-8	WJ193400	EMBLEM	GOLD	GD, 6040BL	
	1-8	WJ193300	EMBLEM	BLACK	V461BL, V461DAB BL, TI, SI	
*	1-13	WJ193900	SHEET WINDOW		V461, 6040GD, 6040SI	
*	1-13	WJ456500	SHEET WINDOW		6040BL	
*	1-13	WJ193700	SHEET WINDOW		V461DAB	
	1-25	WE774800	BIND HEAD P-TIGHT SCREW	3x8 MFZN2W3		
	1-26	WF268000	BIND HEAD P-TIGHT SCREW	3x10 MFZN2B3		TGE
*	6	WK038800	P.C.B. ASS'Y	OPERATION		T
*	6	WK039100	P.C.B. ASS'Y	OPERATION		B
*	6	WK038900	P.C.B. ASS'Y	OPERATION		GE

* New Parts

• AMP UNIT



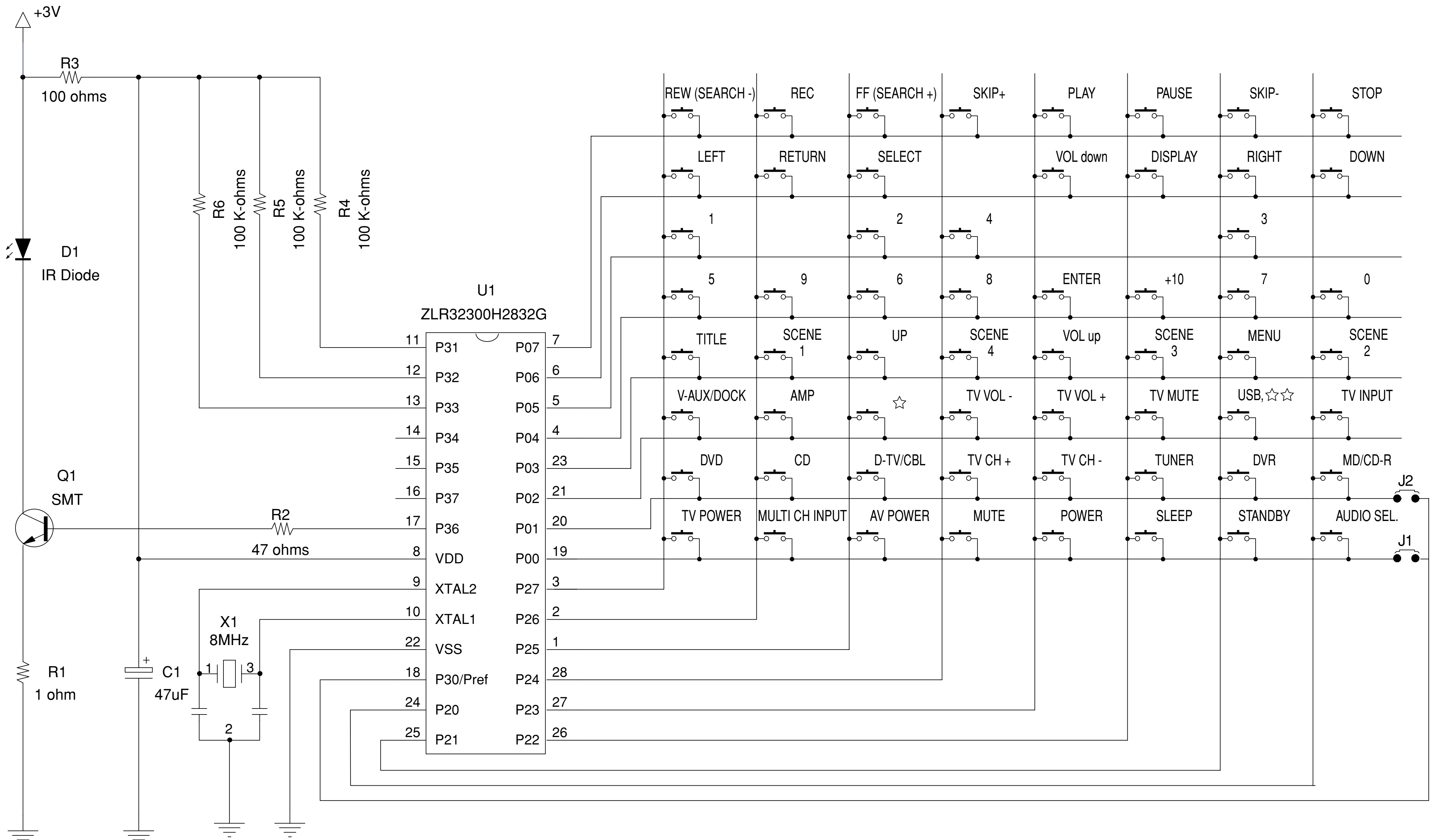
	Ref. No.	Part No.	Description		Remarks	Markets
*	2-1	WK038500	P.C.B. ASS'Y	DSP		T
*	2-1	WK038700	P.C.B. ASS'Y	DSP		B
*	2-1	WK038600	P.C.B. ASS'Y	DSP		GE
*	2-4	WK038000	P.C.B. ASS'Y	MAIN		T
*	2-4	WK038200	P.C.B. ASS'Y	MAIN		B
*	2-4	WK038100	P.C.B. ASS'Y	MAIN		GE
	2-20	WG451000	SUPPORT TR	5P		
	2-21	WJ187700	SUPPORT TR	2P		
	2-103	WE774600	SCREW IC	3x18 MFZN2W3		
	2-104	WF002600	PW HEAD B-TIGHT SCREW	3x8 MFZN2W3		
	2-105	WE774300	BIND HEAD B-TIGHT SCREW	3x8 MFZN2W3		
*	6	WK038800	P.C.B. ASS'Y	OPERATION		T
*	6	WK039100	P.C.B. ASS'Y	OPERATION		B
*	6	WK038900	P.C.B. ASS'Y	OPERATION		GE

* New Parts

■ REMOTE CONTROL

● RAV315 (T, G, E models), RAV310 (B model)

• **SCHEMATIC DIAGRAM**

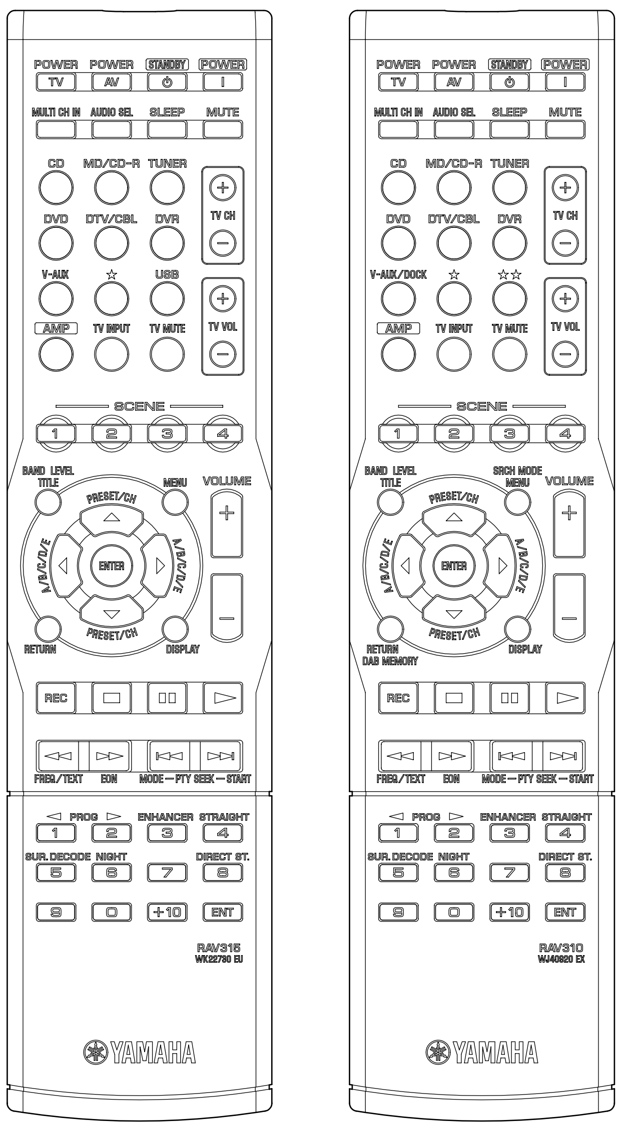


	RAV315	RAV310
J1	X	O
J2	O	X

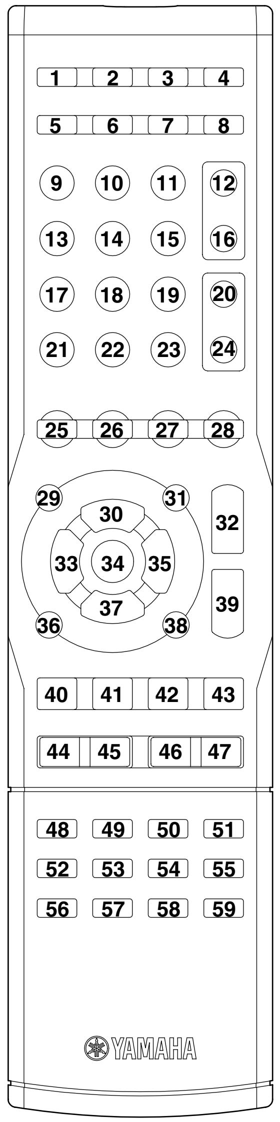
• **PANEL**

RAV315
RX-V461 (T, G, E models)
HTR-6040 (T, G, E models)

RAV310
RX-V461DAB (B model)



- **KEY NO. LAYOUT**



- **KEY CODE**

Key No.	Label	Command Key	YAMAHA signal AMP												
1	TV POWER	–	–	(TV Power)	(TV Power)	(TV Power)	(TV Power)	–	(TV Power)	(TV Power)	(TV Power)	(TV Power)	(TV Power)	(TV Power)	(TV Power)
2	AV POWER	–	–	–	7F80	–	7F80	(DVR Power)	048.012	7F01-00	–	–	7F01-20	–	(device)
3	STANDBY	O	7E-7F	STANDBY											
4	POWER	O	7E-7E	POWER ON											
5	MULTI CH INPUT	O	7A-87	MULTI CH INPUT											
6	AUDIO SEL.	O	7A-C3	AUDIO SELECT											
7	SLEEP	O	7A-57	SLEEP										Default	
8	MUTE	O	7A-IC	MUTE										Library	brand
9	CD	O	7A-15	<INPUT key>	Output IR signal and change Device mode									CD	YAMAHA-1
10	MD/CD-R	O	7A-C9	<INPUT key>	Output IR signal and change Device mode									CD-R	YAMAHA
11	TUNER	O	7A-16	<INPUT key>	Output IR signal and change Device mode									TUNER	YAMAHA-2
12	TV CH +	–	–	(TV CH +)	(TV CH +)	(TV CH +)	(TV CH +)	–	(TV CH +)	(TV CH +)	(TV CH +)	(TV CH +)	(TV CH +)	(TV CH +)	(TV CH +)
13	DVD	O	7A-C1	<INPUT key>	Output IR signal and change Device mode									DVD	YAMAHA-1
14	D-TV/CBL	O	7A-54	<INPUT key>	Output IR signal and change Device mode									TV	–
15	DVR	O	7A-13	<INPUT key>	Output IR signal and change Device mode									DVR	YAMAHA
16	TV CH -	–	–	(TV CH -)	(TV CH -)	(TV CH -)	(TV CH -)	–	(TV CH -)	(TV CH -)	(TV CH -)	(TV CH -)	(TV CH -)	(TV CH -)	(TV CH -)
17	V-AUX / DOCK	O	7A-55	<INPUT key>	Output IR signal and change Device mode									TUNER	YAMAHA-6
18	☆	O	7A-B4	<INPUT key>	Output IR signal and change Device mode									TUNER (RAV315)	YAMAHA-4
														TAPE (RAV310)	YAMAHA-1
19	USB	O		<INPUT key>	Output IR signal and change Device mode									TUNER (RAV315)	YAMAHA-7
	☆ ☆													LD (RAV310)	YAMAHA
20	TV VOL +	–	–	(TV VOL +)	(TV VOL +)	(TV VOL +)	(TV VOL +)	–	(TV VOL +)	(TV VOL +)	(TV VOL +)	(TV VOL +)	(TV VOL +)		(TV VOL +)
21	AMP	O	–	Change to AMP mode											
			Key No	9	10	11	13	14	15	17	18		19		21
			Mode	CD	MD/CD-R	TUNER	DVD	D-TV/CBL	DVR	V-AUX/DOCK	☆ (RAV315)	☆ (RAV310)	USB (RAV315)	☆☆ (RAV310)	AMP
22	TV INPUT	–	–	(TV Input)	(TV Input)	(TV Input)	(TV Input)	–	(TV Input)	(TV Input)	(TV Input)	(TV Input)	(TV Input)	(TV Input)	(TV Input)
23	TV MUTE	–	–	(TV Mute)	(TV Mute)	(TV Mute)	(TV Mute)	–	(TV Mute)	(TV Mute)	(TV Mute)	(TV Mute)	(TV Mute)	(TV Mute)	(TV Mute)
24	TV VOL -	–	–	(TV VOL -)	(TV VOL -)	(TV VOL -)	(TV VOL -)	–	(TV VOL -)	(TV VOL -)	(TV VOL -)	(TV VOL -)	(TV VOL -)	(TV VOL -)	(TV VOL -)
25	SCENE 1	O	7A-007F	SCENE SELECT											
26	SCENE 2	O	7A-037C	SCENE SELECT											
27	SCENE 3	O	7A-0679	SCENE SELECT											
28	SCENE 4	O	7A-0976	SCENE SELECT											
29	TITLE	–	–	–	–	7A-AE	7CB1	–	048. 200	7F01-0D	7A-70	–	7F01-2D	–	7A-86
30	UP	–	–	–	–	7A-10	7CB4	–	048. 088	7F01-0E	7A-6A	–	7F01-2E	–	7A-9D
31	MENU	–	–	–	–	7A-AB	7CB2	–	048. 084	7F01-0F	7A-6D	–	7F01-2F	–	7A-84
32	VOL up	O	7A-1A	VOL UP											
33	LEFT	–	–	–	–	7A-AC	7CB5	–	048. 090	7F01-10	7A-6E	–	7F01-30	–	7A-9F
34	SELECT	–	–	–	–	7A-AD	7CB8	–	048. 092	7F01-11	7A-6F	–	7F01-31	–	7A-DE
35	RIGHT	–	–	–	–	7A-12	7CB6	–	048. 091	7F01-12	7A-6C	7A06	7F01-32	–	7A-9E
36	RETURN	–	–	–	–	7A-AF	7CB7	–	048. 131	7F01-13	7A-71	–	7F01-33	–	7A-AA
37	DOWN	–	–	–	–	7A-11	7CB3	–	048. 089	7F01-14	7A-6B	–	7F01-34	–	7A-9C
38	DISPLAY	–	–	790A	7F9E	7A-B0	7CA6	–	048. 015	7F01-15	7A-72	–	7F01-35	7C13	7A-C2
39	VOL down	O	7A-1B	VOL DOWN											
40	REC	–	–	7A4F	–	–	7C8B	(DVR REC)	048. 055	7F01-16	–	7A04	7F01-36	–	(device)
41	STOP	–	–	7A09	7F84	–	7C85	(DVR Stop)	048. 049	7F01-1D	–	7A03	7F01-3D	7C5B	(device)
42	PAUSE	–	–	7A09	7F83	–	7C83	(DVR Pause)	048. 048	7F01-1A	–	–	7F01-3A	7C5A	(device)
43	PLAY	–	–	7A08	7F82	–	7C82	(DVR Play)	048. 044	7F01-1E	–	7A00	7F01-3E	7C05	(device)
44	REW (SEARCH -)	–	–	7A0D	7F88	7A-A4	7C86	(DVR REW)	048. 041	7F01-17	–	7A01	7F01-37	7C06	(device)
45	FF (SEARCH +)	–	–	7A0C	7F89	7A-A5	7C87	(DVR FF)	048. 040	7F01-18	–	7A02	7F01-38	7C07	(device)
46	SKIP -	–	–	7A0B	7F86	7A-A6	7CB9		048. 033	7F01-1B	–	7A07	7F01-3B	7C02	(device)
47	SKIP +	–	–	7A0A	7F87	7A-A7	7CBA		048. 032	7F01-1C	–	7A40	7F01-3C	7C03	(device)
48	1	–	–	7911	7F91	7A-E5	7C94	–	048. 001	7F01-01	7A-61	–	7F01-21	7C17	7A-59
49	2	–	–	7912	7F92	7A-E6	7C95	–	048. 002	7F01-02	7A-62	–	7F01-22	7C18	7A-58
50	3	–	–	7913	7F93	7A-E7	7C96	–	048. 003	7F01-03	7A-63	–	7F01-23	7C19	7A-94
51	4	–	–	7914	7F94	7A-E8	7C97	–	048. 004	7F01-04	7A-64	–	7F01-24	7C1A	7A-56
52	5	–	–	7915	7F95	7A-E9	7C98	–	048. 005	7F01-05	7A-65	–	7F01-25	7C1B	7A-8D
53	6	–	–	7916	7F96	7A-EA	7C99	–	048. 006	7F01-06	7A-66	–	7F01-26	7C1C	7A-95
54	7	–	–	7917	7F97	7A-EB	7C9A	–	048. 007	7F01-07	7A-67	–	7F01-27	7C1D	–
55	8	–	–	7918	7F98	7A-EC	7C9B	–	048. 008	7F01-08	7A-68	–	7F01-28	7C1E	7A-DD
56	9	–	–	7919	7F99	7A-B1	7C9C	–	048. 009	7F01-09	7A-69	–	7F01-29	7C1F	–
57	0	–	–	7910	7F90	7A-B2	7C93	–	048. 000	7F01-0A	7A-60	–	7F01-2A	7C16	–
58	+10	–	–	791A	7F9A	–	7C9D	–	–	7F01-0B	–	–	7F01-2B	7C5D	–
59	ENTER	–	–	790B	7F8A	7A-B3	7C9E	–	–	7F01-0C	7A-BF	–	7F01-2C	7C15	–

Advanced setup

This unit has additional menus that are displayed in the front panel display. The advanced setup menu offers additional operations to adjust and customize the way this unit operates. Change the initial settings (indicated in bold under each parameter) to reflect the needs of your listening environment.

Notes

- Only **STANDBY/ON** and **STRAIGHT** are effective while you are using the advanced setup menu.
- No other operations can be made while you are using the advanced setup menu.
- The advanced setup menu is only available in the front panel display.

1 Press STANDBY/ON on the front panel to set this unit to the standby mode.

2 Press and hold TONE CONTROL and then press STANDBY/ON to turn on this unit.

This unit turns on, and the advanced setup menu appears in the front panel display.

3 Press STRAIGHT repeatedly to change the selected parameter setting.

4 Press STANDBY/ON to confirm your selection and set this unit to the standby mode.

The settings you made are reflected next time you turn on this unit.

■ Factory presets PRESET

Use this feature to reset all the parameters of this unit to the initial factory settings.

Choices: **CANCEL**, RESET

- Select "CANCEL" not to reset any parameters of this unit.
- Select "RESET" to reset the parameters of this unit.

Notes

- This setting completely resets all the parameters of this unit including the "SET MENU" parameters. However, the advanced setup menu parameters will not be initialized.
- The initial factory settings are activated next time you turn on this unit.

RX-V461/HTR-6040/ RX-V461DAB

YAMAHA